

EPA REGISTRATION NUMBER 89799-1 Vol. 1

Kumar, Rita

From: Kumar, Rita
Sent: Friday, October 10, 2014 4:29 PM
To: 'Leanne Pruett'
Subject: Label amendment for 89799-1, cover letter and stamped label
Attachments: 089799-00001-20141010.pdf

Dear Leanne: Please see attached. This action is now complete.
Regards,
Rita



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

October 10, 2014

Ms. Leanne Pruett
Raymat Crop Sciences, Inc.
440 Boulder Court, Suite 300
Pleasanton, CA 94566

Subject: (1) Amended Section 3 label to add use for citrus crop
group 10-10, and other label revisions
(2) Supplemental label for citrus crop group 10-10
Product Name: Cavalier 2L
EPA Registration Number: 89799-1
Application Date: March 24, 2014
Decision Number: D489462

Dear Ms. Pruett:

The amended label referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act, as amended, is acceptable.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 18 months from the date of this letter. After 18 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

Your release for shipment of the product constitutes acceptance of these conditions. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). If you have any questions, please contact Rita Kumar by phone at (703) 308-8291, or via email at kumar.rita@epa.gov.

Sincerely,

Mark Suarez
Product Manager 7
Insecticide Vertebrate Branch 3
Registration Division (7505P)
Office of Pesticide Programs

Enclosure

RESTRICTED USE PESTICIDE

Due to toxicity to aquatic invertebrate animals. For retail sale to and use only by Certified Applicators, or persons under their direct supervision, and only for those uses covered by the Certified Applicator's certification.

CAVALIER 2L

Insect Growth Regulator

Aqueous Flowable

For use on **field and row crops** (artichoke, barley, oats, triticale and wheat; cotton; leafy brassica and turnip greens; peanut; pepper; rice; soybean; turfgrass), **orchard crops** (citrus crop group 10-10; pear; stonefruit (excluding cherries); tree nuts) and **non-crop uses** (livestock and poultry premises; grassland; non-crop areas)

ACTIVE INGREDIENT:

Diffubenzuron: [((4-Chlorophenyl)amino)carbonyl]-2,6-difluorobenzamide*22.0%

OTHER INGREDIENTS:78.0%

TOTAL:100.0%

*Contains 2 lbs. diffubenzuron per gallon

KEEP OUT OF REACH OF CHILDREN CAUTION

FIRST AID	
IF SWALLOWED:	<ul style="list-style-type: none">• Call a poison control center or doctor immediately for treatment advice.• Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor.• Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none">• Take off contaminated clothing.• Rinse skin immediately with plenty of water for 15-20 minutes.• Call a poison control center or doctor for treatment advice.
IF INHALED:	<ul style="list-style-type: none">• Move person to fresh air.• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.• Call a poison control center or doctor for further treatment advice.
IF IN EYES:	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15-20 minutes.• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.• Call a poison control center or doctor for treatment advice.
HOT LINE NUMBER	
Have the Cavalier 2L container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact Chemtrec at 1-800-424-9300 for emergency medical information.	

EPA Reg. No. 89799-1

EPA Est. No. XXXXX-XX-X

Manufactured for:

Raymat Crop Science, Inc.
440 Boulder Court, Suite 300
Pleasanton, CA 94566

Net Contents: _____ Gallon(s)

ACCEPTED

Oct 10, 2014

Under the Federal Insecticide, Fungicide,
and Rodenticide Act has been tested for the
pesticide registered under

EPA Reg. No. 89799-1

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PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS CAUTION

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for Category A on an EPA chemical-resistant selection chart.

Applicators and Other Handlers Must Wear: A long-sleeved shirt & long pants; chemical-resistant gloves, such as barrier laminate, nitrile rubber, neoprene rubber, natural rubber, polyethylene, PVC, or viton, when mixing and loading and also when using hand-held equipment; shoes plus socks.

Mixers and Loaders Using Fixed-Wing Aircraft Must Wear: A long-sleeved shirt and long pants; chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, PVC or viton; shoes plus socks; dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C or a NIOSH approved respirator with any R, P or HE filter).

Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems (including water soluble bags), enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of glove before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to terrestrial juvenile insects and aquatic invertebrates/mollusks/insects. Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

This product may contaminate water through drift of spray in wind. This product has a potential for runoff for several months or more after application. Poorly draining soils and soils with shallow water tables are more prone to produce runoff that contains this product. A level, well maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams and springs will reduce the potential for contamination of water from rainfall-runoff. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours. Sound erosion control practices will reduce this product's contribution to surface water contamination.

Bees and other insect pollinators can be exposed to this pesticide from:

- Direct contact during foliar applications, or contact with residues on plant surfaces after foliar application
- Ingestion of residues in nectar and pollen when the pesticide is applied as a soil or foliar application

When Using This Product, Take Steps To:

- Minimize exposure of this product to bees and other insect pollinators when they are foraging on pollinator attractive plants around the application site
- Minimize drift of this product on to beehives or to off-site pollinator attractive habitat. Drift of this product onto beehives or off-site to pollinator attractive habitat can result in bee kills.

DIRECTIONS FOR USE RESTRICTED USE PESTICIDE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- coveralls
- chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride
- shoes plus socks

INSTRUCTIONS AND INFORMATION

RUNOFF

Cavalier 2L has a potential for runoff, which can occur up to several months after use. Runoff containing this product is more likely to occur in soils that have shallow water tables or are poorly draining.

The following will decrease the likelihood of contaminating water from runoff:

- a well maintained, level vegetative buffer strip situated between application areas and surface water features (i.e., ponds, springs, streams)
- application of product avoided if forecasts predict rainfall within 48 hours
- practices that foster sound erosion control

SPRAY DRIFT MANAGEMENT

This product may contaminate water through drift or spray in wind. Avoiding spray drift at the application site is the responsibility of the applicator.

The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator is responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to ULV applications on grassland and non-crop areas, for the control of grasshoppers and Mormon crickets.

1. The distance of the outermost nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
2. Observe the regulations of the State where applications are made.
3. Applicators must observe and abide by the requirements of the Aerial Drift Reduction Advisory.

Information on Droplet Size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

Controlling Droplet Size

Volume – Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets. Select nozzles and pressure that deliver medium spray droplets as indicated in nozzle manufacturer's catalogs and in accordance with ASAE Standards S-572.

Pressure – Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use high flow rate nozzles instead of increasing the pressure.

Number of nozzles – Use the minimum number of nozzles that provide uniform coverage.

Nozzle Orientation – Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from the horizontal will reduce droplet size and increase drift potential.

Nozzle Type – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Boom Length - For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

Application Height - Applications should not be made at a height greater than 10 feet above the largest plants unless a greater height is required for aircraft safety. Making applications at the lower height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment - When applications are made with a cross-wind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for the displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

Wind - Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect drift.

Temperature and Humidity - When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are hot and dry.

Temperature Inversions - Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upwards and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas - The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

INFORMATION

Cavalier 2L is an insect growth regulator, whose mode of action disrupts the regular molting process of insect larvae. It is effective against Lepidoptera and Diptera species and a wide variety of other insect pests, and performs well when used in IPM programs.

RESTRICTIONS

- Cavalier 2L cannot be applied to water bodies where swimming is expected
- For Field Crops, Row Crops, Orchard Uses, Grassland, Non-crop Areas: Do not apply within 25 feet by ground or 150 feet by air of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries. All applications must include a 25 foot vegetative buffer strip within the buffer zone to decrease runoff.
- ROTATIONAL CROPS: Unless diflubenzuron is registered for use on a particular crop, wait one month after last application to plant food or feed crops in soils treated with Cavalier 2L.
- Due to mode of action, insects could take several days following application to show visible effects of Cavalier 2L.
- Do not apply via chemigation in the State of California.

APPLICATION INSTRUCTIONS

Mixing Directions – with water

- Fill a clean spray tank with half of the water required for treatment
- Begin agitation and add appropriate amount of Cavalier 2L to spray tank
- Add second half of water while maintaining agitation
- If adding oil, pour the appropriate amount slowly into the mixing tank. Making sure to use at least 2 parts of water to one part of oil will help avoid development of an invert emulsion

Mixing Directions – without water

Premix Cavalier 2L and other ingredients in a nurse tank before transferring into appropriate application equipment

-or-

- Fill a clean tank with appropriate amount of oil or oil-based insecticide
- Begin agitation and add appropriate amount of Cavalier 2L to spray tank
- Thoroughly mix contents of spray tank
- Drain a volume of carrier adequate to fill booms and piping system from the contents of the tank and then add back to tank

Compatibility – when combining Cavalier 2L with other pesticides, additives or adjuvants, test for compatibility and sprayability. In a lidded glass jar (~1 quart size), add all mix partners, in their relative proportions. Invert, shake or mix the jar thoroughly. Observe mixture for approximately 30 minutes (though signs of incompatibility will often be seen within 5 minutes). Read and follow the label of each tank mix Cavalier 2L used for precautionary statements, directions for use, rates and timings, and other restrictions.

Application – aerial or ground

Spray should be applied with equipment that gives uniform and complete coverage of the whole plant / crop surface. Equipment should be calibrated to deliver droplets of 150 to 220 microns in diameter. Continue constant agitation while mixing and applying Cavalier 2L.

Application – Chemigation*

*DO NOT APPLY VIA CHEMIGATION IN THE STATE OF CALIFORNIA

Cavalier 2L can be applied by chemigation in grassland and row crops. System should be properly equipped for insect control. Cavalier 2L can be applied only through sprinkler irrigation systems (center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move). Cavalier 2L cannot be applied through any other type of irrigation system. If treated water is not uniformly distributed, crop injury, illegal pesticide residues or lack of efficacy could occur.

In order to calibrate the irrigation system and injector to apply the mixture:

- Determine how many acres are irrigated by the chemigation system
- Once the irrigation rate has been set, determine how long (minutes) the system takes to cover the intended treatment area
- Determine the amount of mixture (total gallons) necessary to cover the desired acreage.
- Determine injector's gallon per minute rate by dividing amount of mixture (gallons) needed by time (minutes) to cover intended treatment area.
- Determine the correct ounces per minute rate (converting from gallons per minute)
- Operate system at desired irrigation rate and calibrate injector

It is suggested that the injector pump be calibrated at least twice before operation and the system be monitored during operation.

Your local extension service, university experts or equipment manufacturers or representatives can answer questions regarding calibration.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person shall shut the system down and make necessary adjustments should the need arise.

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

If the chemigation system is connected to a public water supply, the following conditions must also be met:

- 'Public water system' means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
- Chemigation systems connected to public water systems must contain a functional reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from a point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
- The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.
- Upon completion of insecticide application, remove scale, pesticide residues, and other foreign matter from the supply tank and entire injector system. Flush thoroughly with clean water.
- Do not apply when wind favors drift beyond the area intended for treatment.

SPRINKLER CHEMIGATION

For continuously moving systems, the mixture containing Cavalier 2L must be injected continuously and uniformly into the irrigation water line as the sprinkler is moving. If continuously moving irrigation equipment is used, apply in no more than 0.25 inch of water. For sprinkler systems that do not move during operation, apply in no more than 0.25 inch of irrigation immediately before the end of the irrigation cycle.

Maintain continuous agitation of the pesticide supply tank for the duration of the application period.

To apply a pesticide using sprinkler chemigation, the chemigation system must meet the following specifications:

- The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch, which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

RESISTANCE MANAGEMENT

Cavalier 2L controls several economically important insect pests, and also provides a margin of safety to pollinators and beneficial insects when used as directed. Cavalier 2L is an effective addition to IPM programs which follow good management practices including:

- Scout regularly to determine new insect pressure and apply Cavalier 2L against larval and immature insect stages for optimum results
- Carefully follow all label directions, including application timing and rate
- Use chemical alternatives (such as oil)
- As part of an IPM program, protect beneficial arthropods
- Use sufficient water volume to obtain good coverage of foliage
- Alternate different insecticides with varying modes of action

SPECIFIC USE DIRECTIONS **FIELD AND ROW CROPS**

ARTICHOKE (California only)

Application Instructions

Cavalier 2L can be applied aerially in 10 to 20 gallons (total volume) per acre, or by ground application in 50 to 250 gallons (total volume) per acre. Make sure that application volume is sufficient for adequate coverage.

Application Rates

Artichoke Plume Moth: apply 8-16 fl. oz. per acre

Optimum results are obtained when Cavalier 2L is applied when first moths are caught in pheromone traps, or when moth flights start.

IMPORTANT

- Cavalier 2L can be a part of an IPM program to manage target pest populations (in combination with cultural practices, target insect population early detection, threshold treatment levels, etc.). University or local extension representatives can give recommendations regarding IPM practices

RESTRICTIONS

- For use only in California
- Maximum number of applications is 3 in any 30 day period
- Application interval is a minimum of 15 days

- Pre-harvest interval is 1 day before harvest

BARLEY, OATS, TRITICALE, & WHEAT

Application Instructions

Cavalier 2L can be applied aerially in 2 to 5 gallons (total volume) per acre, or by ground application in 5 to 15 gallons (total volume) per acre. Make sure that application volume is sufficient for adequate coverage.

Application Rates

Grasshoppers: apply 1 – 2 fl. oz. per acre

Optimum results are obtained when application is made to infesting grasshoppers that have reached the 2nd and 3rd nymphal stage of development. Adult grasshoppers will not be effectively controlled by Cavalier 2L.

Cereal Leaf Beetle: apply 4 fl. oz. per acre

Make application when egg laying begins to occur, for optimum results. If infestation advances into later instar larvae, do not apply Cavalier 2L.

IMPORTANT

- If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper population soon enough to minimize extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.
- Larvae and nymphs could take up to 5 to 7 days following application to show visible effects, due to the mode of action of Cavalier 2L.

RESTRICTIONS

- Pre-harvest interval for forage is 3 days; Pre-harvest interval for hay is 15 days; Pre-harvest interval for grain and straw is 50 days.
- For use only in: Alaska; Colorado; Idaho; Montana; Nebraska, Western (West of Route 281); North Dakota, Western (West of Route 281); Oregon; South Dakota, Western (West of Route 281); Utah, Washington, Wyoming
- Make application only up until the boot stage of growth
- Maximum number of application is 1 per season
- Maximum amount of Cavalier 2L per acre is 4 fl. oz. (1 oz. a.i.) per season

COTTON

Application Instructions

Cavalier 2L may be applied aerially in 3 to 5 gallons (total volume) per acre, or by ground application in 10 to 20 gallons (total volume) per acre. Cavalier 2L can also be applied via ULV application in 20 to 48 fl. oz. total volume per acre aerially, or by ground application in 20 to 64 fl. oz. total volume per acre. Make sure the application volume is sufficient for adequate coverage.

Adjuvants

- If Cavalier 2L is being applied under conditions of high air temperature and/or low humidity, or other conditions that encourage water evaporation, 1 to 2 qts. oil is to be used with Cavalier 2L for control of larvae / nymphs
- For a low volume application (ground or aerial), the use of 1 pt. to 2 qts. of an emulsified vegetable or paraffinic crop oil can reduce evaporation of spray droplets (and subsequent drift), and can enhance canopy penetration
- When Cavalier 2L is being applied via ULV, 20 fl. oz. (minimum) of an emulsified cottonseed, vegetable or petroleum based oil carrier is to be used (if cottonseed oil used is non-emulsified, a compatibility agent may be necessary for thorough blending)

For oil specifications, check with your Raymat representative or supplier.

Application Rates

Beet Armyworm (early season before first bloom): Apply 2-4 fl. oz. per acre

For acceptable beet armyworm control in young cotton, apply Cavalier 2L when observing 2 beet armyworm egg masses or hatchouts per 100 feet of row, or other sign of beet armyworm activity. Make multiple directed or broadcast applications until 8 fl. oz. Cavalier 2L have been applied per acre, at application intervals of 5 to 7 days. Multiple applications more completely cover rapidly growing cotton plants, and Cavalier 2L's persistence can help prevent later buildup of beet armyworm populations.

Beet Armyworm (mid-season): apply 4-8 fl. oz. per acre

Make multiple applications at 5 to 7 day intervals, until 8 fl. oz. Cavalier 2L per acre have been applied. Start application around first bloom, up through mid-bloom. For more extreme larval pressure, or for larger cotton, use higher listed application rate. Make first application when a new generation of larvae is about to hatch (determined by peak beet armyworm moth catches in pheromone traps). For optimum control, treat cotton leaves during early stages of larval development, before populations become established.

Beet Armyworm (late season): apply 6-8 fl. oz. Cavalier 2L per acre

Apply when peak beet armyworm moth catches are observed in pheromone traps, after mid-bloom, but at least 14 days prior to harvest. For more extreme larval pressure, or for larger cotton, use higher listed application rate.

For control of **Fall Armyworm, Yellowstriped Armyworm, Southern Armyworm** and suppression of **Soybean Looper, Cabbage Looper, Saltmarsh Caterpillar**: apply 4 -8 fl. oz. per acre.

Make applications during a 5 to 7 day interval, in early larval development stages, until at least 8 fl. oz. Cavalier 2L per acre have been applied.

Boll Weevil (early season, before first bloom): apply 4-8 fl. oz. per acre

For optimum boll weevil control, apply initially at pinhead square stage of cotton growth. Wait 7 days before repeat application. For ULV application use the lower (4 fl. oz. per acre) rate.

Adjuvants: Use 2 to 4 quarts paraffinic crop oil, emulsified cottonseed oil or vegetable oil. Or if making a ULV application, use a minimum of 8 fl. oz. of vegetable or petroleum based oil carrier, oil-based insecticide or emulsified cottonseed oil (if cottonseed oil used is non-emulsified, a compatibility agent may be necessary for thorough blending). For oil specifications, check with your Raymat representative or supplier.

Cavalier 2L does not kill adult boll weevil, but controls populations by suppressing reproduction – eggs deposited by affected female weevils will not hatch. Seven to 10 days after initial treatment of female, non-hatching eggs are laid, and will continue to be laid for approximately 10 days, or longer if female boll weevil is exposed to additional applications of Cavalier 2L. Control of egg hatch and larval development within the pinhead square keeps it from shedding, and results in normal boll development. Multiple treatments and early application will result in best control.

Boll Weevil: apply 2-4 fl. oz. per acre

Apply when adult weevils are going into diapause, when cotton plant has begun blooming out at the top or has reached full vegetative growth. The number of weevils that appear in the spring is reduced when applications are made to adult weevils going into diapause to overwinter.

Make 2 to 3 (maximum) applications, at 7 to 14 day intervals.

Adjuvants: Use 2 to 4 quarts paraffinic crop oil, emulsified cottonseed oil or vegetable oil with a low volume application spray. Or if making a ULV application, use a minimum of 8 fl. oz. of vegetable or petroleum based oil carrier, oil-based insecticide or emulsified cottonseed oil (if cottonseed oil used is non-emulsified, a compatibility agent may be necessary for thorough blending).

Grasshopper: apply 2 fl. oz. per acre

When most infesting grasshoppers have reached the 2nd and 3rd nymphal stage of development, Cavalier 2L should be applied. For effective control, apply before grasshoppers reach the adult stage. If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper population soon enough to minimize extensive foliage feeding. Read and follow

the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

IMPORTANT:

- Cavalier 2L can be tank mixed with other cotton insecticides. Be careful when tank mixing Cavalier 2L with emulsifiable concentrate insecticides and oil, as phytotoxicity may result. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.
- Larvae and nymphs could take up to 5 to 7 days following application to show visible effects, due to the mode of action of Cavalier 2L.

RESTRICTIONS

- Maximum number of applications per season is 6
- Maximum amount of Cavalier 2L per acre is 24 fl. oz. (6 oz. a.i.) per year
- For uses after boll opening, the maximum number of applications per year is 3, and the maximum amount of product per acre is 12 fl. oz. (3 oz. a.i.)
- Pre-harvest interval is 14 days

LEAFY BRASSICA GREENS SUBGROUP (includes: Broccoli raab, Cabbage, Chinese (bok choy), Collards, Kale, Mizuna, Mustard greens, Mustard spinach, Rape greens) and TURNIP GREENS

Application Instructions

Cavalier 2L can be applied via ground application in a minimum of 30 gallons of water per acre. Multiple applications can more effectively cover newly growing foliage. Make sure that application volume is sufficient for adequate coverage.

Application Rate

Grasshopper: apply 2-4 fl. oz. per acre

When most infesting grasshoppers have reached the 2nd and 3rd nymphal stage of development, Cavalier 2L should be applied. Reapply after 7 days if crop reinfestation (nymphal hatch out) continues. For effective control, apply before grasshoppers reach the adult stage. Use higher listed application rate for greater residual control, around dense foliage, or for areas with historically heavy grasshopper infestations.

IMPORTANT

- Larvae and nymphs could take up to 5 to 7 days following application to show visible effects, due to the mode of action of Cavalier 2L.
- If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper population soon enough to minimize extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.
- Populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting

RESTRICTIONS

- Do not apply to turnip varieties or cultivars with harvestable root
- Maximum number of applications per year is 4
- Maximum amount of product per acre is 16 fl. oz. (4 oz. a.i.) per year
- Pre-harvest interval is 7 days

PEANUT

Application Instructions

Cavalier 2L can be applied aerially, in 3 to 5 gallons water per acre, or by ground application, in 9 to 35 gallons water per acre. Make sure that application volume is sufficient for uniform coverage.
Adjuvants: See COTTON section.

Application Rate

Velvet Bean Caterpillar, Mexican Bean Beetle, Green Cloverworm: apply 2-4 fl. oz. per acre

Armyworm (such as Beet, Fall, Southern, Yellow-striped), Lesser Cornstalk Borer: apply 4-8 fl. oz. per acre

Soybean Looper suppression: apply 4-8 fl. oz. per acre

For optimum control and minimization of insect damage, apply when larvae are small (less than 1/2 inch). Use higher listed application rate for greater residual control, around dense foliage, or for areas with historically heavy infestations. Cavalier 2L can be reapplied if necessary, to control reappearance of pests, after an application interval of 14 days.

Grasshopper: apply 2 fl. oz. per acre

When most infesting grasshoppers have reached the 2nd and 3rd nymphal stage of development, Cavalier 2L should be applied. For effective control, apply before grasshoppers reach the adult stage.

IMPORTANT

- Due to the mode of action of Cavalier 2L, it could take up to 5 to 7 days following application to show first signs of control (populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting)
- If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper population soon enough to minimize extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

RESTRICTIONS

- Maximum number of applications per season is 3
- Maximum amount of product per acre is 24 fl. oz. (6 oz. a.i.) per season
- Pre-harvest interval is 28 days

PEPPER – Bell and Non-Bell

Application Instructions

Cavalier 2L can be applied aerially, in 3 to 10 gallons (total volume) per acre, or by ground application, in a minimum of 30 gallons (total volume) per acre. Make sure that application volume is sufficient for adequate coverage.

Adjuvants: see COTTON section.

Application Rate

Apply 4 to 8 fl. oz. per acre

Pepper Weevil - Make application when pepper plants begin to flower. For more thorough coverage of expanding fruit and new foliage, Cavalier 2L can be reapplied every 7 days (note – do not exceed seasonal application rate of 24 fl. oz. product per acre). For moderate to heavy infestations, use higher listed rate. Cavalier 2L does not control adult pepper weevils, but adult contact or consumption of Cavalier 2L will bring about reduced hatching of eggs from these adults.

Armyworm (Beet, Fall Southern) and other Lepidopteran insects that feed on pepper foliage:

For control of armyworms and to lessen damage to fruit and leaves, make application when armyworm larvae are small. For more thorough coverage of expanding fruit and new foliage, Cavalier 2L can be reapplied every 7 days (note – do not exceed seasonal application rate of 24 fl. oz. Cavalier 2L per acre). For heavy infestations, or if product is applied alone, use higher listed rate.

Tank Mixes: If presence of late instar larvae are detected, tank mix Cavalier 2L with an insecticide that provides insect knockdown. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

IMPORTANT

- Due to the mode of action of Cavalier 2L, it could take up to 5 to 7 days following application to show first signs of control (populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting)

RESTRICTIONS

- Maximum amount of product per season is 24 fl. oz. (6 oz. a.i.) per acre
- Maximum number of applications per season is 5, with a 7 day interval between applications
- Pre harvest interval is 7 days

RICE

Application Rate and Instructions

Apply Cavalier 2L aerially, in at least 5 gallons total volume per acre.

Rice Water Weevil:

When adults have reached an economic threshold or begin laying eggs, application of Cavalier 2L will control rice weevil larvae. Local extension service or university experts can advise regarding egg laying and economic threshold. Use the rates indicated below:

- California – Make one 8 to 16 fl. oz. per acre application (for historically high infestations, use 12-16 fl. oz. rate). Apply to rice in CA when rice is at 2 to 4 leaf stage, typically 2-5 days after rice emerges above water.
- Southern U. S. Rice Belt – water seeded, pinpoint flood or continuous flood rice – Apply 8 fl. oz. per acre application (typically when rice leaves have emerged above water). Make second 8 fl. oz. application 5 to 7 days later. [NOTE – not making second application in indicated time frame could lead to unsatisfactory control, particularly for higher infestations or prolonged migration]
- Southern U. S. Rice Belt – drill seeded, dry seeded or water seeded delayed flood rice – Make one 12 to 16 fl. oz. per acre application (for historically high infestations, or prolonged migration of weevils into rice field, use higher listed application rate). Apply to rice 2 to 5 days after permanent flood establishment.

For optimum results, wait 7 days to disturb flood after single application, and for split application, wait 4 days to disturb flood after first treatment and 7 days to disturb flood after second treatment.

Tank Mixes: Cavalier 2L can be tank mixed with rice post permanent flood herbicides, such as those containing the active ingredient quinclorac, triclopyr or bensulfuron methyl, as it does not exhibit any phytotoxicity to rice. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

IMPORTANT

- To avoid decreased activity, apply Cavalier 2L when field flooding is not in progress
- Cavalier 2L does not control adult weevils directly, adults feeding on treated plants will not lay viable eggs

- Cavalier 2L prevents larvae from hatching, and controls eggs laid under water treated with Cavalier 2L

RESTRICTIONS

- Maximum amount of product per year is 16 fl. oz. (4 oz. a.i.) per acre
- Preharvest interval is 80 days
- Not for use on wild rice (*Zizania* spp.)
- Granular material treated with Cavalier 2L cannot be used in rice
- Treat entire field with Cavalier 2L (do not try to treat specific sections of rice field)
- Floodwaters from treated rice are only to be used to irrigate crops listed on Cavalier 2L's label.
- Retain treated floodwaters at least 14 days, to give Cavalier 2L time to dissipate
- Cavalier 2L should not be used around crayfish (crawfish):
 - Do not use on rice fields that are also used for crayfish farming
 - Do not use on rice fields that are directly next to sites of crayfish farming
 - Do not drain treated water onto fields where crayfish are farmed

SOYBEANS (Except California)

Application Instructions

Cavalier 2L can be applied aerially, in 3 to 5 gallons water per acre, or by ground application, in 9 to 35 gallons water per acre. Make sure that application volume is sufficient for uniform coverage.

Adjuvants: See COTTON section.

Application Rate

Velvet Bean Caterpillar, Mexican Bean Beetle, Green Cloverworm: apply 2-4 fl. oz. per acre

For lower insect damage and optimum control, apply when larvae are small (less than 1/2 inch). Cavalier 2L can be reapplied if necessary, to control reappearance of damaging numbers of pests, after an application interval of 30 days. When soybean pod formation has begun, after vegetative growth is complete, Cavalier 2L applied at the lower rate (2 fl. oz.) can prevent velvetbean caterpillar buildup.

Beet Armyworm, Fall Armyworm, Soybean Looper (suppression): apply 4 fl. oz. per acre
For optimum control, apply before populations build, and when worms are small in size.

Grasshopper: apply 2 fl. oz. per acre

When most infesting grasshoppers have reached the 2nd and 3rd nymphal stage of development, Cavalier 2L should be applied. For effective control, apply before grasshoppers reach the adult stage.

Tank Mix: Apply Cavalier 2L tank mixed with a knockdown insecticide if soybean fields experience a large grasshopper population incursion from adjacent and nearby fields, to reduce extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

Soybean yield enhancement: Cavalier 2L can increase soybean seed yield in both determinate and indeterminate cultivars, under certain growing conditions, and LOW insect pressure. Making application of Cavalier 2L at 2 to 4 fl. oz., at the R3 (beginning of pod growth – fully developed leaf with pod of 3/16 inches in length on main stem uppermost node) or R3.5 (pod almost fully elongated – fully developed leaf with pod 3/4 inches in length on main stem uppermost nodes) growth stages will result in most consistent yield increase.

IMPORTANT

- Due to the mode of action of Cavalier 2L, it could take up to 5 to 7 days following application to show first signs of control (populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting)

RESTRICTIONS

- Do not use on soybeans in the State of California
- Maximum number of applications per season is 2

- Maximum amount of product per year is 8 fl. oz. (2 oz. a.i.) per acre
- Pre-harvest interval is 21 days

TURFGRASS (for use on sod farms only)

Application Instructions

Cavalier 2L can be applied in 20 to 50 gallons of water per acre. Use higher volume of water for greater insect pressure or dense foliage.

Application Rate

Armyworms (Fall, True, Southern Beet, Yellow-striped), Sod Webworm, Striped Grass Looper, Granulate Cutworm and other Lepidopteran foliage-feeding caterpillars:

Apply 2 fl. oz. per acre

Make application while caterpillar larvae are small (less than ½ inch long, prior to reaching fourth instar growth stage), and at first sign of hatch out. Populations will be decreased once larvae consume Cavalier 2L and undergo molting.

RESTRICTIONS

- Maximum amount of product per year is 8 fl. oz. (2 oz. a.i.) per acre
- Maximum number of applications per year is 4

ORCHARD CROPS

CITRUS FRUIT GROUP 10-10 Australian desert lime; Australian finger-lime; Australian round lime; Brown River finger lime; calamondin; citron; citrus hybrids; grapefruit; Japanese summer grapefruit; kumquat; lemon; lime; Mediterranean mandarin; mount white lime; New Guinea wild lime; orange, sour; orange, sweet; pummelo; Russell River lime; satsuma mandarin; sweet lime; tachibana orange; Tahiti lime; tangelo; tangerine (mandarin); tangor; trifoliate orange; uniq fruit; cultivars, varieties, and/or hybrids of these

Application Instructions

Cavalier 2L can be applied as a high volume spray aerially, using fixed wing or rotary equipment, in 5 to 20 gallons (total volume) per acre, or by ground application, using hand-held, hand gun, air blast or air assisted equipment, in 50 to 1000 gallons (total volume) per acre. Make sure that application volume is sufficient for uniform coverage of leaf surfaces. If making a low volume application (see pest specific sections below), spray equipment nozzle must produce a droplet size of 90 microns median diameter or larger. Optimum results on the largest range of pests will be gained from applying Cavalier 2L when new flush is emerging and/or present, however product can be applied to citrus at any time of the year.

Application Rate

For all citrus pests, apply Cavalier 2L at a rate of 20 fl. oz. per acre.

Asian Citrus Psyllid (*Diaphonia citri*)

Make application when Asian Citrus Psyllid (ACP) oviposition is seen or expected, when early feather leaf flush is present.

To maximize coverage of the entire leaf flush, make split application by spraying half of volume of product (10 fl. oz. per acre) as indicated above (oviposition seen or expected, early-feather leaf flush is present, leaf distortion is evident), and the other half (10 fl. oz. per acre) to protect new growth flush, as needed. Wait at least 30 days for subsequent applications of Cavalier 2L.

Low Volume Application – apply by ground (air-assisted or air blast spray equipment - nozzle must produce droplet size of 90 microns or larger) in 10 gallons (total volume) per acre in California, or 3 to 5 gallons (total volume) per acre in all other states.

Citrus Rust Mite (*Phyllocoptruta oleivora*)

Make application when Citrus rust mites (CRM) are first observed on fruit or leaves.

For CRM control programs, rotate to an insecticide with a different mode of action before applying Cavalier 2L. Activity of Cavalier 2L on CRM is on immature stages, with most activity on late-instar CRM and may not reach full effect for up to 14 days after application.

Lepidopterous Miners: Citrus Leafminer (*Phyllocnistis citrella*)

Make application when Citrus Leafminer (CLM) oviposition is seen or expected, when leaf flush is present and oldest leaf is expanded by one-quarter, or when leaf mining is evident.

To maximize coverage of the entire leaf flush, make split application by spraying half of volume of product (10 fl. oz. per acre) as indicated above (oviposition seen or expected, leaf flush is present, leaf distortion is evident), and the other half (10 fl. oz. per acre) to protect new growth flush, as needed. Wait at least 30 days for subsequent applications of Cavalier 2L.

Low Volume Application – apply by ground (air-assisted or air blast spray equipment - nozzle must produce droplet size of 90 microns or larger) in 10 gallons (total volume) per acre in California, or 3 to 5 gallons (total volume) per acre in all other states.

Lepidopterous Miners: Citrus Peel Miner (*Marmara* spp.)

Make application when citrus peel surfaces show Citrus peel miner (CPM) oviposition, or when expected.

To maximize coverage of the fruit surface, make split application by spraying half volume of product (10 fl. oz. per acre) when CPM oviposition begins, and the other half (10 fl. oz. per acre) to protect expanded fruit growth, as needed. Wait at least 30 days for subsequent applications of Cavalier 2L. Protection from CPM larvae will lessen over time as fruit expands and new, unprotected tissue develops, but may last up to several weeks.

Citrus Root Weevil Complex: West Indian Sugarcane Rootstalk Borer Weevil (*Diaprepes abbreviatus*), Southern Blue-Green Citrus Root Weevil (*Pachnaeus litus*), Blue-Green Citrus Weevil (*Pachnaeus opalus*) Fuller Rose Beetle (*Asynonychus godmani*), Little Leaf Notcher (*Artipus flondanus*)

Make application to citrus leaf flush when Citrus root weevils (CRW) are seen, when oldest leaf is expanded by one-half, or when recent leaf feeding is evident.

Katydid, Grasshoppers:

Make application when katydids or grasshoppers are seen, or recent feeding on leaves or fruit is noticed.

To maximize coverage and protection of leaves and fruit, make split application by spraying half of volume of product (10 fl. oz. per acre) as indicated above (katydids or grasshoppers are seen, recent feeding on leaves or fruit), and the other half (10 fl. oz. per acre) to protect new growth, as needed. Wait at least 30 days for subsequent applications of Cavalier 2L.

Adjuvants - To enhance spray coverage, add a CDA approved or other quality surfactant such as Dine-Amic® or Kinetic® or addition of a spray oil, such as FC435-66. Addition of a spray oil also aids knockdown of existing populations (CRM), penetration or absorption of Cavalier 2L into immature stages of insects², mines³, eggs^{1,3,4,5,6,7}, larvae³, pupae³, nymphs^{1,6,7} and adults^{1,6,7}. A spray oil improves Cavalier 2L's activity, which is to prevent eggs from hatching, larvae or nymphs from molting, moths from emerging from pupae, and limiting eggs laid or able to hatch by adult females when exposed to Cavalier 2L through contact, ingestion and/or absorption. Spray oil also limits egg mass attachment to citrus leaf surface³.

1 – Asian Citrus Psyllid

2 – Citrus Rust Mite

3 – Citrus Leafminer

4 – Citrus Peel Miner

5 – Citrus Root Weevil Complex

6 – Katydid

7 - Grasshopper

IMPORTANT:

- Application of Cavalier 2L when new citrus flush has emerged will give best control of the most pests, however it can be applied anytime during the year
- Cavalier 2L affects existing ACP, CLM and citrus root weevil populations by diminishing their reproductive ability.
- Cavalier 2L does not control the following insect growth stages:
 - Adult Asian citrus psyllid, citrus root weevils, katydids or grasshoppers
 - Adult Citrus Rust mite or Citrus rust mite eggs
 - Citrus Leafminer or Citrus peel miner moths

RESTRICTIONS

- **Ground Application:** Do not apply within 25 feet of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries. **In the State of Florida**, do not apply within 100 feet of estuarine/marine bodies of water. Spray last three rows windward of surface water using nozzles on one side only, with spray directed away from surface water. Avoid spray going over tops of trees by adjusting or turning off top nozzles. Shut off nozzles on one side away from the grove when spraying the outside row. Shut off nozzles when turning at ends of rows and passing tree gaps in rows.
- **Aerial Application:** Do not apply within 150 feet of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries. **In the State of Florida**, do not apply within 1000 feet of estuarine/marine bodies of water.
- Maximum amount of product per acre is 60 fl. oz. (15 oz. a.i.) per year
- Maximum number of applications per year is three full rate applications of 20 fl. oz. per acre per year or six split applications of 10 fl. oz. per acre per year, or a combination of full and split applications, not exceeding the maximum yearly amount of 60 fl. oz. (15 oz. a.i.) per acre per year.
- Pre-harvest interval is 7 days.
- Wait a minimum of 30 days for repeat application (except when making split applications, as per instructions, above)
- Do not graze livestock in treated areas or harvest cover crops in treated areas for livestock feed

PEAR

Application Instructions

Apply Cavalier 2L in a minimum of 80 to 400 gallons of water per acre. Make sure that application volume is sufficient for uniform coverage.

Application Rate

Pear Psylla, Pear Rust Mite (pre-bloom) – apply 40 – 48 fl. oz. per acre

Make application any time from delayed dormant period to white bud, or 'popcorn,' stage of growth, and during the deposition of pear psylla eggs so that Cavalier 2L contacts eggs and/or 1st and 2nd instar nymphs. Make sure tree is completely and uniformly covered with spray for optimum insect control.

Additives: During delayed dormant period, apply Cavalier 2L with 4 to 6 gallons per acre of a horticultural mineral oil. When applying during other growth periods, through the white bud, or 'popcorn,' stage, apply Cavalier 2L with 0.25% horticultural oil (maximum of 1 gallon horticultural oil per acre). Additionally, coverage can be enhanced with the use of a surfactant (follow surfactant label instructions).

Codling Moth, suppression of **Pear Psylla** (post bloom) – apply 12 to 16 fl. oz. per acre

Make application as soon as possible after first codling moths are observed or caught (biofix), or about 50-75 degree days after biofix. Cavalier 2L prohibits hatching of codling moth eggs, and must be applied to trees before eggs are laid, so that laid eggs are deposited on treated surfaces. Make sure that entire tree surface, including fruit and foliage is treated with Cavalier 2L. If codling moth pressure is light, or if pear trees are small, use lower rate. Timing of application is extremely important. Timing can be determined by local fruit specialist or pest control consultant, by employing the use of pheromone traps. Typically the optimum time for

application will occur around 10 – 14 days prior to application of an organophosphate insecticide, or around late petal fall.

A second application of Cavalier 2L should be applied 14 – 18 days after initial application.

If necessary (prior to egg laying of 2nd generation, as determined by timing indicated above, for 1st generation), a third and fourth application can be made. If the use of pheromone traps are not employed, the third application should be made 21-30 days after the 2nd, or 1000 degree days after biofix. The fourth application should be made 21-30 days after the third.

Tank Mixes: For more effective control of moderate to heavy codling moth infestations, when treating large trees, or for optimum timing of Cavalier 2L spray (to save a trip through the orchard), Cavalier 2L can be combined with organophosphate insecticides. Apply at the normal time for the first organophosphate cover spray, which occurs at the beginning of egg hatch (250 degree days following biofix for 1st generation, or 1250 degree days following biofix for 2nd generation). Application of this tank mixture can be repeated for 2nd and 3rd generations of codling moth, or Cavalier 2L alone can be used prior to egg laying. For late season control, oil should not be used in the tank mix. When codling moth populations are low, an organophosphate / Cavalier 2L mixture could control an entire generation with 1 application. For heavy populations, this combination of Cavalier 2L/organophosphate may not control the entire generation with one spray. In that case apply a second spray 14 – 18 days later of Cavalier 2L alone or in combination with an organophosphate, so that eggs laid after insecticide application will be residually controlled. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

Leafminer – apply 8 to 16 fl. oz. per acre

For control of leafminer larvae and eggs, make application during or just before eggs are laid. Fruit specialist or local pest control consultant can advise about timing for control of 1st or 2nd generations of leafminer.

Cavalier 2L can also be applied for control of later generations. For control through early sap feeding stage, Cavalier 2L should be applied prior to egg laying. For control of leafminer larvae throughout the sap feeding stage, make sure that foliage is completely covered.

IMPORTANT

- Using oil with Cavalier 2L could cause certain pear varieties to display injury. Local fruit tree specialists can advise on compatibility of oil mixtures.

RESTRICTIONS

- Maximum number of applications per year is 4
- Maximum amount of product per year is 64 fl. oz. (16 oz. a.i.) per acre
- Pre harvest interval is 14 days.
- Do not use oil with Cavalier 2L for late season (3rd and 4th) applications.

STONEFRUIT (excluding cherries)

Includes: Apricot, Nectarine, Peach, Plum, Prune

Application Instructions

Apply Cavalier 2L by ground in a minimum of 50 gallons of water for trees up to 10 feet tall and a minimum of 100 gallons of water for larger trees. For optimal results, use enough water for sufficient coverage and make sure that canopy is evenly and thoroughly covered.

Application Rate

Peach Twig Borer: apply 12 – 16 fl. oz. per acre (use higher listed rate for orchard with a history of heavy infestations)

Dormant / delayed dormant application: apply with a narrow range oil (4 to 6 gallons per acre or 1.5 to 2.0 gallons per 100 gallons spray volume in a dilute spray).

Bloom application: Application can be made with a vegetable oil (1 qt. per acre), with application starting at early bloom.

Leafroller (Filbert, Oblique Banded, Omniverous, Variegated), Moth (Oriental Fruit, Winter), Fall Webworm, Walnut Caterpillar: apply 8 – 16 fl. oz. per acre.

Make application when insect larvae are first observed. The higher listed use rate will give longer residual control. It should also be used if foliage is heavy or dense, if pest infestations are high, or if trees are larger or crop load is low.

Grasshoppers, Katydid(s) (for use in **Peach Orchards in GA ONLY**): Apply 2 fl. oz. per acre

Make application to peach orchards or surrounding vegetation when immature insects are first observed. Larvae and nymphs could take up to 5 to 7 days following application to show visible effects, due to the mode of action of Cavalier 2L.

Cavalier 2L will not control adult grasshoppers. If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper populations soon enough to minimize extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statement, directions for use, rates and timings, and other restrictions.

RESTRICTIONS:

- Maximum amount of product per season is 32 fl. oz. (8 oz. a.i.) per acre (16 fl. oz. (4 oz. a.i.) when applied to grasshoppers and katydids in peach orchards in GA only)
- Maximum number of applications per season is 2 (or when applied to grasshoppers or katydids in peach orchards in GA only, as needed, up to application of 16 fl. oz.)
- Wait a minimum of 21 days between Cavalier 2L applications
- Cavalier 2L is not to be applied to stonefruit after petal fall (with the exception of applications to grasshoppers or katydids in peach orchards in GA only)
- Preharvest interval for use on grasshoppers or katydids in peach orchards in GA is 14 days.

TREE NUTS GROUP

(includes Almond, Beech nut, Brazil nut, Butternut, Chestnut, Chinquapin, Filbert (hazelnut), Hickory nut, Macadamia nut (bush nut), Pecan, Pistachio, Walnut (Black and English))

Application Instructions

Apply Cavalier 2L by ground in a minimum of 50 gallons of water for trees up to 10 feet tall and a minimum of 100 – 300 gallons of water for larger trees. For optimal results, use enough water for sufficient coverage and make sure that canopy is evenly and thoroughly covered.

Application Rate

Filbert Worm: apply 12 – 16 fl. oz. per acre

Apply Cavalier 2L before eggs are laid on treated foliage, or when moths first emerge from cocoon – if using pheromone detection traps, 2 to 3 days after first moth catch [mating takes place soon after emergence and egg laying begins the following day]. Make sure that tree and foliage coverage is uniform for best control. Use lower rate if trees are small or worm pressure is low. Use higher listed rate if trees are larger, or worm pressure is moderate to high. If necessary (continuing high moth pressure), a subsequent application of Cavalier 2L should be made.

Hickory Shuckworm: apply 8 – 16 fl. oz. per acre

Split Application – for optimum control, apply 4 to 8 fl. oz. Cavalier 2L when larvae begin to feed or when hickory shuckworm moth emerges; make second 4 to 8 fl. oz. application two weeks later.

Cavalier 2L can also be applied at half-shell hardening, with additional applications 21 days later, up to shuck split, or while heavy insect infestations are present. Use the higher listed rate on heavy, dense foliage, on larger trees or low crop load, or under higher pest infestations.

Codling Moth— apply 16 fl. oz. per acre

For optimum control, apply prior to egg laying. Apply a full coverage spray to orchard so that eggs are laid on a surface that is treated with Cavalier 2L.

Apply when first moths hatch (determine by moth flight or pheromone traps). Following application should be made 21 days later. This timing is appropriate for first or second generation (brood).

Tank Mixing – Cavalier 2L can be tank mixed with an organophosphate insecticide at its lowest label rate to control extended populations of codling moth because of variations in emergence time due to temperature fluctuations or overwintering. Application should occur at normal timeframe for an organophosphate insecticide. Additionally, if Cavalier 2L is not initially applied prior to egg laying, then tank mixing with an organophosphate insecticide as indicated above will enhance control. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

Peach Twig Borer – apply 12 – 16 fl. oz. per acre (use higher listed rate for orchards with a history of heavy infestations)

Dormant / delayed dormant application: apply with a narrow range oil (4 to 6 gallons per acre or 1.5 to 2.0 gallons per 100 gallons spray volume in a dilute spray).

Bloom application: Application can be made with a vegetable oil (1 qt. per acre), with application starting at early bloom.

Spring Flight ('May Spray') or Summer Flight – Apply Cavalier 2L at initial flight activity (as determined by pheromone traps).

Pecan Nut Case-Bearer: apply 8 – 16 fl. oz. per acre

Apply Cavalier 2L as a split application as indicated:

- For optimum control and best nut set, apply first application of 4 – 8 fl. oz. at bud break and second application 14 days later [in southeastern U. S., bud break would typically occur in mid-April]
- For control of adult generations and to target egg hatch, make first application of 4 – 8 fl. oz. 8 to 15 days following biofix (threshold is reached when 5 moths are captured in 3 pheromone traps in a 7 day period)

Local extension service or university experts may have different or additional recommendations regarding Cavalier 2L application. Consult them prior to use. Use the higher rate on heavy, dense foliage, on larger trees or low crop load, or under higher pest infestations.

Pecan Weevil (suppression): apply 8 – 16 fl. oz. per acre

Use the higher listed rate for moderate to heavy infestations, or if weevils are attacking crop.

Leafroller (Filbert, Oblique Banded, Omniverous, Variegated), Moth (Oriental Fruit, Winter), Fall Webworm, Omniverous Leaf-tier, Caterpillar (Redhumped, Walnut): apply 8 – 16 fl. oz. per acre

Make application as soon as larval infestations are detected. Use the higher listed rate on heavy, dense foliage, on larger trees or low crop load, or under higher pest infestations.

Tent Caterpillar (for use in almonds, pecans, pistachios and walnuts (black and English)).

Apply 8 – 16 fl. oz. per acre

Make application as soon as larval infestations are detected. Use the higher listed rate on heavy, dense foliage, on larger trees or low crop load, or under higher pest infestations.

IMPORTANT

- If four applications are made to tree nuts, the timing should correspond to:
 - Dormant to pre-bud swell
 - Bloom to petal fall
 - Flowers/leaves/immature nut fruit formation
 - Hull split

RESTRICTIONS

- Pre-harvest interval is 28 days
- Maximum amount of product per growing season is 64 fl. oz. (16 oz. a.i.) per acre
- Maximum number of applications per year is 4 (3 for walnuts)

NON-CROP USES

LIVESTOCK AND POULTRY PREMISES

Including barns, dairies, equine facilities, farms, farm buildings, feedlots, poultry houses and other production facilities. Cavalier 2L application can be made to feed troughs, feed bunks, fence lines of holding pens, hay bale feeders, water troughs and waste retention ponds (marginal areas of), and Cavalier 2L can control insects on/around bedding material, cage frames, ceilings, feed muck/spoilage, floors, litter, manure, manure/straw mixtures, posts, spoiled organic refuse, stale/waste feed and walls / wall footings.

Application Instructions and Rate

Carrion Beetle, Darkling Beetle, Hide Beetle (Except California):

Apply 12 fl. oz. Cavalier 2L in 2 to 20 gallons of water per 1000 ft²

Broadcast – Cavalier 2L can be applied as a broadcast spray to the whole facility, including the following areas: walls, posts and cage frames (at least 1 foot up from floor); cracks and crevices around insulation; litter following de-caking (making sure to thoroughly treat areas under water and feed lines). Make sure spray volume (which will be dependent on litter depth) is sufficient to completely and uniformly wet litter and other surfaces.

Banded Application – Cavalier 2L can be applied only where pests congregate, including along perimeter walls and side and end walks, and under water and feed lines. Make sure spray volume (which will be dependent on litter depth) is sufficient to completely and uniformly wet litter and other surfaces, in a 2-4 foot wide band under, around and next to target areas. If lower sections of walls, posts and cage frames are treated, make sure to apply product at least 1 foot up from floor.

Flies (including House, Stable, Face, Horn):

Broadcast - Apply 12 fl. oz. Cavalier 2L in 2 to 20 gallons of water per 1000 ft²

Cavalier 2L can be applied as a broadcast spray to the whole facility, including the following areas: walls, posts and cage frames (at least 1 foot up from floor); cracks and crevices around insulation; litter following de-caking (making sure to thoroughly treat moist areas and areas under water and feed lines). Make sure spray volume (which will be dependent on litter depth) is sufficient to completely and uniformly wet litter and other surfaces.

Spot Treatment – Apply 5 fl. oz. Cavalier 2L in 10 gallons of water

Make a directed spray application when flies first appear. 1 quart of spray solution should be applied to 10 ft² of surface (10 gallons spray solution treat 400 ft²). Repeat applications can be made when fly numbers begin to increase – usually within 14 to 21 days.

IMPORTANT

- Cavalier 2L provides extended control of eggs and developing larvae, but not pupal or adult stages of insects; contact or ingestion of Cavalier 2L by adults will adversely affect number of and viability of eggs.
- If a large population of adult insects is present, applying a knockdown insecticide (either alone or tank mixed with Cavalier 2L) is recommended for quick decrease of population. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.
- If controlling insects around hay feeding sites, make product application around entire soil surface where livestock activity mixes the waste hay and manure

RESTRICTIONS

- Do not apply this product for control of Carrion Beetle, Darkling Beetle or Hide Beetle in the State of California.

- Application is not to be made directly to livestock or poultry
- For spot treatment, do not make application while birds are in the houses – make application only between production cycles. Make band or broadcast applications once per production cycle;
- Band or broadcast applications can be used for indoor use only. Maximum application rate (band or broadcast application) is 12 fl. oz. (3 oz. a.i.) per 1000 ft² per production cycle.
- Spot treatment applications can be used for indoor or outdoor use. Maximum application for spot treatment – outdoor is 5 fl. oz. per 400 ft² per application, not to exceed 17 applications per year. Maximum application for spot treatment – indoor is 12 fl. oz. per 1000ft² (524 fl. oz. per acre) per year.
- Either a 100 foot setback or other measure that provides equivalent or better pollution reduction (35-foot wide vegetative buffer strip or physical barrier, field specific conditions or alternate conservation practices) must be observed for application of manure and process wastewater around any down gradient surface waters, agricultural or domestic well heads, open tile line intake structures, sinkholes or other conduits to surface waters.
- Feed or water is not to be contaminated by application of Cavalier 2L; exposed feed or water is to be covered or removed from treatment area.

GRASSLAND

For control in grassland, including rangeland, pastures, improved pastures and similar areas used for production of native, domesticated forage grasses for harvest for livestock primarily for grazing or mechanical harvest, grasses/forages/cellulosic crops grown for biofuel, biomass or bioenergy production, including switch grass, miscanthus sp., etc.

Application Instructions

Cavalier 2L may be applied aerially (high or low volume application) in 2 to 5 gallons water per acre, or by ground application (low or high volume) in 2 to 30 gallons of water per acre. For rangeland ULV (aerial or ground), apply in a minimum of 12 fl. oz. total volume per acre. Make sure that target crop is completely covered.

Adjuvants and Additives: For aerial and ULV application, especially when high air temperature or low humidity favor evaporation, add a product that retards evaporation and drift to the spray mixture. If this product is oil-based, mix 1 part oil to at least 2 parts water.

Application Rate

2 fl. oz. per acre

Horn Fly, Face Fly

Make application to cow manure patties. Cavalier 2L will provide at least 14 days of control of flies emerging from cow manure.

Fall Armyworm, Striped Grass Looper, other Lepidopteran foliage feeding caterpillars

Make application while caterpillar larvae are small (less than ½ inch long, prior to reaching fourth instar growth stage), and at first sign of hatch out. Populations will be decreased once larvae consume Cavalier 2L and undergo molting.

Grasshopper, Mormon Cricket

- Make one application at 1 to 2 fl. oz. per acre on grasshoppers or Mormon crickets at early instar growth stages (i.e., 2nd through 4th instar nymphal stages). A second application, at 0.5 to 1 fl. oz. per acre can be made 14 to 21 days after first application. For application on pastureland, use higher listed use rate.
- For RAAT (Reduced Area and Agent Treatment*) application on early instars in rangeland only, apply 0.75 to 1 fl. oz. per acre. Use lower rate, and skip up to 50% of the infested area (i.e., for every 100 feet treated, skip the next 100 ft. swath) if most of infestation is at early instar growth stage, vegetation is sparse, and topography is uniform. Use higher listed rate and 100% coverage if most of the infestation is at a late instar growth stage, vegetation is dense, terrain is rough and/or application is

being made when temperature is high. A second application, at 0.5 to 1 fl. oz. per acre can be made 14 to 21 days after first application.

* A RAAT application is a grasshopper IPM program that takes advantage of the grasshopper's natural tendency to move as they feed. As grasshoppers move from untreated to treated areas and eat foliage treated with Cavalier 2L, they are killed once molting occurs. The rate of Cavalier 2L is lowered and applied in alternating treated and untreated strips. A RAAT treatment reduces application cost, giving ranchers a cost effective way to control grasshoppers or Mormon crickets on their rangeland, depending on severity of infestation, insect growth stage and density of vegetation.

If treated areas have a dense canopy, if nymphs have passed the third instar growth stage, and/or if temperature and climate encourage insect survival and proliferation, use higher listed rates of Cavalier 2L. Cavalier 2L should be applied after egg hatch, through early instar growth stages, as it will not control the adult stages of these insects. Cavalier 2L's residual activity will continue to control larvae later in the season.

Tank Mix: Apply Cavalier 2L tank mixed with a knockdown insecticide or grasshopper adulticide if adults are present (due to overwintering or early hatching) to reduce extensive foliage feeding. Make sure tank mix partners are compatible prior to mixing and adding to main spray tank. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

IMPORTANT

- Apply when possibility of drift to sensitive areas (residential, non-target crops, water bodies, threatened or endangered species habitat) is small.
- For low volume and ULV applications, continue constant agitation while mixing and applying Cavalier 2L, and make sure the appropriate concentration of Cavalier 2L is mixed in the boom before application begins.
- Due to the mode of action of Cavalier 2L, it could take up to 5 to 7 days following application to show first signs of control (populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting)
- In response to treatment with Cavalier 2L, Mormon crickets could exhibit structural deformities (such as malformed abdominal segments, twisted antennae, wrinkled wings, missing posterior legs, hernias, hemolymph exudation). This could result in behaviors (such as inability to fly, limited jumps and unsteady landings, slower movement, reduction in feeding) which cause the nymphs or adults to be more vulnerable to predators (birds, mammals or other insects)

RESTRICTIONS

- Maximum amount of product per cutting is 2 fl. oz. (0.5 oz. a.i.) per acre
- Maximum amount of product per year is 6 fl. oz. (1.5 oz. a.i.) per acre
- Wait at least 1 day following Cavalier 2L application prior to cutting grass.

NON-CROP AREAS

Including field border, fence rows, roadsides, farmsteads, ditchbanks, wasteland, Conservation Reserve Program (CRP) land

Application Instructions

Cavalier 2L may be applied aerially (high or low volume application) in 2 to 5 gallons water per acre, or by ground application (low or high volume) in 2 to 30 gallons of water per acre. For additional Application Instructions, see Grassland Directions for Use.

Application Rate

2 fl. oz. per acre

Grasshopper, Mormon Cricket

Insects can be managed in their breeding areas prior to migration into cropland or other undesirable areas with application of Cavalier 2L.

See Grassland Directions for Use for additional instructions and application information.

Fall Armyworm, Striped Grass Looper and other Lepidopteran foliage-feeding caterpillars

Make application while caterpillar larvae are small (less than ½ inch long, prior to reaching fourth instar growth stage), and at first sign of hatch out. Populations will be decreased once larvae consume Cavalier 2L and undergo molting.

RESTRICTIONS

- Maximum amount of product per application is 2 fl. oz. (0.5 oz. a.i.) per acre
- Maximum amount of product applied per year is 6 fl. oz. (1.5 oz. a.i.) per acre

See Grassland Directions for Use for other restrictions and comments

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

PESTICIDE STORAGE: Store product in its original labeled container only.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER HANDLING

Plastic containers: Nonrefillable container. Do not reuse or refill this container. Triple rinse or pressure rinse (or equivalent) promptly after emptying.

Triple rinse as follows: For containers small enough to shake: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. For containers too large to shake: Empty remaining contents into a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the rinsate into a mix tank and store for later use or disposal. Repeat the procedure two more times.

Pressure rinse as follows: Empty the remaining contents into a mix tank and continue to drain for 10 seconds after the flow continues to drip. Hold container upside down over mix tank to collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Then offer container for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Recycling: Once cleaned, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. To find the nearest site, contact your chemical dealer or manufacturer or contact Ag Container Recycling Council (ACRC) at 1-877-952-2272 (toll free) or www.acrecycle.org.

LIMITED WARRANTY

Raymat Crop Science, Inc. warrants only that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the label, under average use conditions, when used strictly in accordance with the label and subject to the Risks of Using This product as described above. To the extent consistent with applicable law AND AS SET FORTH ABOVE, RAYMAT CROP SCIENCES, INC. MAKES NO OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED. No agent or representative of Raymat Crop Sciences or Seller is authorized to make or create any other express or implied warranty.

LIMITATION OF LIABILITY

To the fullest extent allowed by law, Raymat Crop Sciences, Inc., or Seller is not liable for any incidental, consequential, indirect or special damages resulting from the use or handling of this product. The limitation includes, but is not limited to, loss of yield on all or any portion of the treated acreage, increased care, treatment or other expenses required to take the crop to harvest, increased finance charges or altered finance ratings, emotional or mental distress and/or exemplary damages. TO THE FULLEST EXTENT ALLOWED BY LAW, THE EXCLUSIVE REMEDY OF THE BUYER, AND THE EXCLUSIVE MAXIMUM LIABILITY OF RAYMAT CROP SCIENCES, INC. OR SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT SHALL BE THE RETURN OF THE PURCHASE PRICE OF THIS PRODUCT OR, AT THE ELECTION OF RAYMAT CROP SCIENCES, INC OR SELLER, THE REPLACEMENT OF THE PRODUCT.

PROMPT NOTICE OF CLAIM

To the extent consistent with applicable law allowing such requirements Raymat Crop Science, Inc. must be provided notice as soon as Buyer has reason to believe it may have a claim, but in no event later than twenty-one days from the date of application, whichever is later, so that an immediate inspection of the affected property and growing crops can be made.

To the extent consistent with applicable law if Buyer does not notify Raymat Crop Sciences, LLC of any claims in such period, it shall be barred from obtaining any remedy.

NO AMENDMENTS

Raymat Crop Sciences, Inc. and Seller offer this product, and Buyer accepts it, subject to the foregoing Disclaimer, Risks of Using This product, Limited Warranty and Limitation of Liability, which may not be modified by any oral or written agreement.

EPA [Approval date]

RESTRICTED USE PESTICIDE

Due to toxicity to aquatic invertebrate animals. For retail sale to and use only by Certified Applicators, or persons under their direct supervision, and only for those uses covered by the Certified Applicator's certification.

SUPPLEMENTAL LABELING

READ THE ENTIRE LABEL FOR CAVALIER 2L BEFORE PROCEEDING WITH THE USE DIRECTIONS CONTAINED IN THIS SUPPLEMENTAL LABELING

This labeling must be in the possession of the user at the time of pesticide application.

"Label" as used in this supplemental labeling refers to the label booklet for Cavalier 2L and this supplement.

This supplemental labeling expires on March 31, 2016 and must not be used or distributed after this date.

CAVALIER 2L

Insect Growth Regulator
Aqueous Flowable

EPA Reg. No. 89799-1

For Use on Citrus Crop Group 10-10

ACTIVE INGREDIENT:

Diflubenzuron: [((4-Chlorophenyl)amino)carbonyl]-2,6-difluorobenzamide* 22.0%

OTHER INGREDIENTS: 78.0%

TOTAL: 100.0%

*Contains 2 lbs. diflubenzuron per gallon

KEEP OUT OF REACH OF CHILDREN CAUTION

FIRST AID	
IF SWALLOWED:	<ul style="list-style-type: none">• Call a poison control center or doctor immediately for treatment advice.• Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor.• Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none">• Take off contaminated clothing• Rinse skin immediately with plenty of water for 15-20 minutes.• Call a poison control center or doctor for treatment advice.
IF INHALED:	<ul style="list-style-type: none">• Move person to fresh air.• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.• Call a poison control center or doctor for further treatment advice.
IF IN EYES:	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15-20 minutes.• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.• Call a poison control center or doctor for treatment advice.
HOT LINE NUMBER	
Have the Cavalier 2L container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact Chemtrec at 1-800-424-9300 for emergency medical information.	

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION**

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for Category A on an EPA chemical-resistant selection chart.

Applicators and Other Handlers Must Wear: A long-sleeved shirt & long pants; chemical-resistant gloves, such as barrier laminate, nitrile rubber, neoprene rubber, natural rubber, polyethylene, PVC, or viton, when mixing and loading and also when using hand-held equipment; shoes plus socks.

Mixers and Loaders Using Fixed-Wing Aircraft Must Wear: A long-sleeved shirt and long pants; chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, PVC or viton; shoes plus socks; dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C or a NIOSH approved respirator with any R, P or HE filter).

Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems (including water soluble bags), enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of glove before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to terrestrial juvenile insects and aquatic invertebrates/mollusks/insects. Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

This product may contaminate water through drift of spray in wind. This product has a potential for runoff for several months or more after application. Poorly draining soils and soils with shallow water tables are more prone to produce runoff that contains this product. A level, well maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams and springs will reduce the potential for contamination of water from rainfall-runoff. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours. Sound erosion control practices will reduce this product's contribution to surface water contamination.

Bees and other insect pollinators can be exposed to this pesticide from:

- Direct contact during foliar applications, or contact with residues on plant surfaces after foliar application
- Ingestion of residues in nectar and pollen when the pesticide is applied as a soil or foliar application

When Using This Product, Take Steps To:

- Minimize exposure of this product to bees and other insect pollinators when they are foraging on pollinator attractive plants around the application site
- Minimize drift of this product on to beehives or to off-site pollinator attractive habitat. Drift of this product onto beehives or off-site to pollinator attractive habitat can result in bee kills.

DIRECTIONS FOR USE RESTRICTED USE PESTICIDE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- coveralls
- chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride
- shoes plus socks

INSTRUCTIONS AND INFORMATION

RUNOFF

Cavalier 2L has a potential for runoff, which can occur up to several months after use. Runoff containing this product is more likely to occur in soils that have shallow water tables or are poorly draining.

The following will decrease the likelihood of contaminating water from runoff:

- a well maintained, level vegetative buffer strip situated between application areas and surface water features (i.e., ponds, springs, streams)
- application of product avoided if forecasts predict rainfall within 48 hours
- practices that foster sound erosion control

SPRAY DRIFT MANAGEMENT

This product may contaminate water through drift or spray in wind. Avoiding spray drift at the application site is the responsibility of the applicator.

The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator is responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to ULV applications on grassland and non-crop areas, for the control of grasshoppers and Mormon crickets.

1. The distance of the outermost nozzles on the boom must not exceed $\frac{3}{4}$ the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.
3. Observe the regulations of the State where applications are made.
4. Applicators must observe and abide by the requirements of the Aerial Drift Reduction Advisory.

Information on Droplet Size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

Controlling Droplet Size

Volume – Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.

Pressure – Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use high flow rate nozzles instead of increasing the pressure.

Number of nozzles – Use the minimum number of nozzles that provide uniform coverage.

Nozzle Orientation – Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from the horizontal will reduce droplet size and increase drift potential.

Nozzle Type – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Boom Length - For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

Application Height - Applications should not be made at a height greater than 10 feet above the largest plants unless a greater height is required for aircraft safety. Making applications at the lower height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment - When applications are made with a cross-wind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for the displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

Wind - Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect drift.

Temperature and Humidity - When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are hot and dry.

Temperature Inversions - Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upwards and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas - The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

INFORMATION

Cavalier 2L is an insect growth regulator, whose mode of action disrupts the regular molting process of insect larvae. It is effective against Lepidoptera and Diptera species and a wide variety of other insect pests, and performs well when used in IPM programs.

RESTRICTIONS

- Cavalier 2L cannot be applied to water bodies where swimming is expected
- For Field Crops, Row Crops, Orchard Uses, Grassland, Non-crop Areas: Do not apply within 25 feet by ground or 150 feet by air of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries. All applications must include a 25 foot vegetative buffer strip within the buffer zone to decrease runoff.
- ROTATIONAL CROPS: Unless diflubenzuron is registered for use on a particular crop, wait one month after last application to plant food or feed crops in soils treated with Cavalier 2L.
- Due to mode of action, insects could take several days following application to show visible effects of Cavalier 2L.
- Do not apply via chemigation in the State of California.

APPLICATION INSTRUCTIONS

Mixing Directions – with water

- Fill a clean spray tank with half of the water required for treatment
- Begin agitation and add appropriate amount of Cavalier 2L to spray tank
- Add second half of water while maintaining agitation
- If adding oil, pour the appropriate amount slowly into the mixing tank. Making sure to use at least 2 parts of water to one part of oil will help avoid development of an invert emulsion

Mixing Directions – without water

Premix Cavalier 2L and other ingredients in a nurse tank before transferring into appropriate application equipment

-or-

- Fill a clean tank with appropriate amount of oil or oil-based insecticide
- Begin agitation and add appropriate amount of Cavalier 2L to spray tank
- Thoroughly mix contents of spray tank
- Drain a volume of carrier adequate to fill booms and piping system from the contents of the tank and then add back to tank

Compatibility – when combining Cavalier 2L with other pesticides, additives or adjuvants, test for compatibility and sprayability. In a lidded glass jar (~1 quart size), add all mix partners, in their relative proportions. Invert, shake or mix the jar thoroughly. Observe mixture for approximately 30 minutes (though signs of incompatibility will often be seen within 5 minutes). Read and follow the label of each tank mix Cavalier 2L used for precautionary statements, directions for use, rates and timings, and other restrictions.

Application – aerial or ground

Spray should be applied with equipment that gives uniform and complete coverage of the whole plant / crop surface. Equipment should be calibrated to deliver droplets of 150 to 220 microns in diameter. Continue constant agitation while mixing and applying Cavalier 2L.

Application – Chemigation*

***DO NOT APPLY VIA CHEMIGATION IN THE STATE OF CALIFORNIA**

Cavalier 2L can be applied by chemigation in grassland and row crops. System should be properly equipped for insect control. Cavalier 2L can be applied only through sprinkler irrigation systems (center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move). Cavalier 2L cannot be applied through any other type of irrigation system. If treated water is not uniformly distributed, crop injury, illegal pesticide residues or lack of efficacy could occur.

In order to calibrate the irrigation system and injector to apply the mixture:

- Determine how many acres are irrigated by the chemigation system
- Once the irrigation rate has been set, determine how long (minutes) the system takes to cover the intended treatment area
- Determine the amount of mixture (total gallons) necessary to cover the desired acreage.
- Determine injector's gallon per minute rate by dividing amount of mixture (gallons) needed by time (minutes) to cover intended treatment area.
- Determine the correct ounces per minute rate (converting from gallons per minute)
- Operate system at desired irrigation rate and calibrate injector

It is suggested that the injector pump be calibrated at least twice before operation and the system be monitored during operation.

Your local extension service, university experts or equipment manufacturers or representatives can answer questions regarding calibration.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person shall shut the system down and make necessary adjustments should the need arise.

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

If the chemigation system is connected to a public water supply, the following conditions must also be met:

- 'Public water system' means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
- Chemigation systems connected to public water systems must contain a functional reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from a point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
- The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.
- Upon completion of insecticide application, remove scale, pesticide residues, and other foreign matter from the supply tank and entire injector system. Flush thoroughly with clean water.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

SPRINKLER CHEMIGATION

For continuously moving systems, the mixture containing Cavalier 2L must be injected continuously and uniformly into the irrigation water line as the sprinkler is moving. If continuously moving irrigation equipment is

used, apply in no more than 0.25 inch of water. For sprinkler systems that do not move during operation, apply in no more than 0.25 inch of irrigation immediately before the end of the irrigation cycle.

Maintain continuous agitation of the pesticide supply tank for the duration of the application period.

To apply a pesticide using sprinkler chemigation, the chemigation system must meet the following specifications:

- The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch, which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

RESISTANCE MANAGEMENT

Cavalier 2L controls several economically important insect pests, and also provides a margin of safety to pollinators and beneficial insects when used as directed. Cavalier 2L is an effective addition to IPM programs which follow good management practices including:

- Scout regularly to determine new insect pressure and apply Cavalier 2L against larval and immature insect stages for optimum results
- Carefully follow all label directions, including application timing and rate
- Use chemical alternatives (such as oil)
- As part of an IPM program, protect beneficial arthropods
- Use sufficient water volume to obtain good coverage of foliage
- Alternate different insecticides with varying modes of action

SPECIFIC USE DIRECTIONS

CITRUS FRUIT GROUP 10-10 Australian desert lime; Australian finger-lime; Australian round lime; Brown River finger lime; calamondin; citron; citrus hybrids; grapefruit; Japanese summer grapefruit; kumquat; lemon; lime; Mediterranean mandarin; mount white lime; New Guinea wild lime; orange, sour; orange, sweet; pummelo; Russell River lime; satsuma mandarin; sweet lime; tachibana orange; Tahiti lime; tangelo; tangerine (mandarin); tangor; trifoliate orange; unqi fruit; cultivars, varieties, and/or hybrids of these

Application Instructions

Cavalier 2L can be applied as a high volume spray aerially, using fixed wing or rotary equipment, in 5 to 20 gallons (total volume) per acre, or by ground application, using hand-held, hand gun, air blast or air assisted equipment, in 50 to 1000 gallons (total volume) per acre. Make sure that application volume is sufficient for uniform coverage of leaf surfaces. If making a low volume application (see pest specific sections below), spray

equipment nozzle must produce a droplet size of 90 microns median diameter or larger. Optimum results on the largest range of pests will be gained from applying Cavalier 2L when new flush is emerging and/or present, however product can be applied to citrus at any time of the year.

Application Rate

For all citrus pests, apply Cavalier 2L at a rate of 20 fl. oz. per acre.

Asian Citrus Psyllid (*Diaphonia citri*)

Make application when Asian Citrus Psyllid (ACP) oviposition is seen or expected, when early feather leaf flush is present.

To maximize coverage of the entire leaf flush, make split application by spraying half of volume of product (10 fl. oz. per acre) as indicated above (oviposition seen or expected, early-feather leaf flush is present, leaf distortion is evident), and the other half (10 fl. oz. per acre) to protect new growth flush, as needed. Wait at least 30 days for subsequent applications of Cavalier 2L.

Low Volume Application – apply by ground (air-assisted or air blast spray equipment - nozzle must produce droplet size of 90 microns or larger) in 10 gallons (total volume) per acre in California, or 3 to 5 gallons (total volume) per acre in all other states.

Citrus Rust Mite (*Phyllocoptruta oleivora*)

Make application when Citrus rust mites (CRM) are first observed on fruit or leaves.

For CRM control programs, rotate to an insecticide with a different mode of action before applying Cavalier 2L. Activity of Cavalier 2L on CRM is on immature stages, with most activity on late-instar CRM and may not reach full effect for up to 14 days after application.

Lepidopterous Miners: Citrus Leafminer (*Phyllocnistis citrella*)

Make application when Citrus Leafminer (CLM) oviposition is seen or expected, when leaf flush is present and oldest leaf is expanded by one-quarter, or when leaf mining is evident.

To maximize coverage of the entire leaf flush, make split application by spraying half of volume of product (10 fl. oz. per acre) as indicated above (oviposition seen or expected, leaf flush is present, leaf distortion is evident), and the other half (10 fl. oz. per acre) to protect new growth flush, as needed. Wait at least 30 days for subsequent applications of Cavalier 2L.

Low Volume Application – apply by ground (air-assisted or air blast spray equipment - nozzle must produce droplet size of 90 microns or larger) in 10 gallons (total volume) per acre in California, or 3 to 5 gallons (total volume) per acre in all other states.

Lepidopterous Miners: Citrus Peel Miner (*Marmara* spp.)

Make application when citrus peel surfaces show Citrus peel miner (CPM) oviposition, or when expected.

To maximize coverage of the fruit surface, make split application by spraying half volume of product (10 fl. oz. per acre) when CPM oviposition begins, and the other half (10 fl. oz. per acre) to protect expanded fruit growth, as needed. Wait at least 30 days for subsequent applications of Cavalier 2L. Protection from CPM larvae will lessen over time as fruit expands and new, unprotected tissue develops, but may last up to several weeks.

Citrus Root Weevil Complex: West Indian Sugarcane Rootstalk Borer Weevil (*Diaprepes abbreviatus*), Southern Blue-Green Citrus Root Weevil (*Pachnaeus litus*), Blue-Green Citrus Weevil (*Pachnaeus opalus*) Fuller Rose Beetle (*Asynonychus godmani*), Little Leaf Notcher (*Artipus flondanus*)

Make application to citrus leaf flush when Citrus root weevils (CRW) are seen, when oldest leaf is expanded by one-half, or when recent leaf feeding is evident.

Katydid, Grasshoppers:

Make application when katydids or grasshoppers are seen, or recent feeding on leaves or fruit is noticed.

To maximize coverage and protection of leaves and fruit, make split application by spraying half of volume of product (10 fl. oz. per acre) as indicated above (katydids or grasshoppers are seen, recent feeding on leaves or fruit), and the other half (10 fl. oz. per acre) to protect new growth, as needed. Wait at least 30 days for subsequent applications of Cavalier 2L.

Adjuvants - To enhance spray coverage, add a CDA approved or other quality surfactant such as Dine-Amic® or Kinetic® or addition of a spray oil, such as FC435-66. Addition of a spray oil also aids knockdown of existing populations (CRM), penetration or absorption of Cavalier 2L into immature stages of insects², mines³, eggs^{1,3,4,5,6,7}, larvae³, pupae³, nymphs^{1,6,7} and adults^{1,6,7}. A spray oil improves Cavalier 2L's activity, which is to prevent eggs from hatching, larvae or nymphs from molting, moths from emerging from pupae, and limiting eggs laid or able to hatch by adult females when exposed to Cavalier 2L through contact, ingestion and/or absorption. Spray oil also limits egg mass attachment to citrus leaf surface³.

- | | |
|--------------------------------|-----------------------|
| 1 – Asian Citrus Psyllid | 2 – Citrus Rust Mite |
| 3 – Citrus Leafminer | 4 – Citrus Peel Miner |
| 5 – Citrus Root Weevil Complex | 6 – Katydid |
| 7 – Grasshopper | |

IMPORTANT:

- Application of Cavalier 2L when new citrus flush has emerged will give best control of the most pests, however it can be applied anytime during the year
- Cavalier 2L affects existing ACP, CLM and citrus root weevil populations by diminishing their reproductive ability.
- Cavalier 2L does not control the following insect growth stages:
 - Adult Asian citrus psyllid, citrus root weevils, katydids or grasshoppers
 - Adult Citrus Rust mite or Citrus rust mite eggs
 - Citrus Leafminer or Citrus peel miner moths

RESTRICTIONS

- **Ground Application:** Do not apply within 25 feet of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries. **In the State of Florida**, do not apply within 100 feet of estuarine/marine bodies of water. Spray last three rows windward of surface water using nozzles on one side only, with spray directed away from surface water. Avoid spray going over tops of trees by adjusting or turning off top nozzles. Shut off nozzles on one side away from the grove when spraying the outside row. Shut off nozzles when turning at ends of rows and passing tree gaps in rows.
- **Aerial Application:** Do not apply within 150 feet of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries. **In the State of Florida**, do not apply within 1000 feet of estuarine/marine bodies of water.
- Maximum amount of product per acre is 60 fl. oz. (15 oz. a.i.) per year
- Maximum number of applications per year is three full rate applications of 20 fl. oz. per acre per year or six split applications of 10 fl. oz. per acre per year, or a combination of full and split applications, not exceeding the maximum yearly amount of 60 fl. oz. (15 oz. a.i.) per acre per year.
- Pre-harvest interval is 7 days.
- Wait a minimum of 30 days for repeat application (except when making split applications, as per instructions, above)
- Do not graze livestock in treated areas or harvest cover crops in treated areas for livestock feed

Read the "LIMITED WARRANTY" in the label booklet for this product before using.

Raymat Crop Science, Inc.
440 Boulder Court, Suite 300
Pleasanton, CA 94566

EPA [Approval date]

Kumar, Rita

Resubmission:

S 958656

From: Leanne Pruett <Leanne@PyxisRC.com>
Sent: Thursday, October 02, 2014 11:44 AM
To: Kumar, Rita
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)
Attachments: 20131002 - Updated Data Matrix Public Copy - Cavalier 2L citrus cg 10.pdf; 20131002 - Updated Data Matrix Agency Copy- Cavalier 2L citrus cg 10.pdf

Hi, Rita –

Here is the updated data matrix for the Cavalier 2L. We have cited and are making an offer to pay for the citrus CG10 data.

If I need to send you anything else, please let me know.

Best Regards,
Leanne

From: Kumar, Rita [mailto:Kumar.Rita@epa.gov]
Sent: Wednesday, October 01, 2014 4:15 PM
To: Leanne Pruett
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

One more thing, formulator's exemptions remains in place for all earlier uses. Just the most recent changes are not supported, and data must be cited.
Rita

From: Leanne Pruett [mailto:Leanne@PyxisRC.com]
Sent: Wednesday, October 01, 2014 4:01 PM
To: Kumar, Rita
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

OK – Thanks, Rita –

I'll get back to you soon regarding what we will do about this pending amendment.

Best Regards,
Leanne

From: Kumar, Rita [mailto:Kumar.Rita@epa.gov]
Sent: Wednesday, October 01, 2014 3:59 PM
To: Leanne Pruett
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Current source product needs to be updated to citrus crop group 10-10, after they have made an offer to pay to Chemtura. The use citrus is non-specific and could technically include the whole crop group, but we know for a fact that the site was expanded to crop group only recently. So, I am certain that you need to work with Chemtura to get these changes on the label.

I apologize for not catching this earlier. I just assumed that your data matrix would include all necessary citations.
Thanks,
Rita

From: Leanne Pruett [mailto:Leanne@PyxisRC.com]
Sent: Wednesday, October 01, 2014 3:48 PM
To: Kumar, Rita
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Oh -- you're right --

But my argument still stands -- the [REDACTED] label still allows use on citrus.

If you don't agree that the current source supports the label update, I will check with the registrants and see if they will allow me to update the labeling without formulator's exemption -- If they will allow me to do so, I can send you an updated data matrix and send out offers to pay to Chemtura.

Best Regards,
Leanne

From: Kumar, Rita [mailto:Kumar.Rita@epa.gov]
Sent: Wednesday, October 01, 2014 3:39 PM
To: Leanne Pruett
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Leanne: That is exactly my dilemma. You are citing [REDACTED] as your source material, see your e-mail dated June 13 in which you sent me a revised formulator's exemption form. And you are taking uses from a Chemtura label to update your product. I need citations for Chemtura data that were used to update 400-461 with expanded citrus use, reduced PHI and reduced retreatment interval for citrus.

Thanks,
Rita

From: Leanne Pruett [mailto:Leanne@PyxisRC.com]
Sent: Wednesday, October 01, 2014 3:00 PM
To: Kumar, Rita
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Hi, Rita --

Looking a little further into the issue of what the technical diflubenzuron will support, I see that Chemtura updated their Diflubenzuron 90% Concentrate (EPA Reg. No. 400-466) to add "Only for formulation into an insecticide growth regulator for (1) the following uses: . . . citrus crop group 10-10 (for citrus group 10-10, formulations are limited to Water Dispersible Granular and Flowable Concentrate products)".

However, their label prior to this update listed "formulation into an insecticide growth regulator for (1) the following uses: . . . oranges, grapefruit, tangerines, . . ." which would not have been sufficient to support the label expansion from certain citrus fruits to the entire crop group

Chemtura's Technical Diflubenzuron (EPA Reg. No. 400-467), like [REDACTED] indicates "Only for formulation into an insecticide growth regulator for the following uses: . . . citrus . . .". I believe this does support the label expansion from certain citrus fruits to the entire crop group.

From: Leanne Pruett
Sent: Wednesday, October 01, 2014 2:45 PM
To: 'Kumar, Rita'
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Hi, Rita –

Every change that I included on this Cavalier 2L label amendment was pulled directly from the Chemtura Dimilin 2L label.

You specifically mention the expanded citrus use – I assume you are referring to the expansion from use on 'orange, grapefruit, tangerine, pummelo and their hybrids' to Citrus Crop Group 10-10 (and all related listed crops). This expansion is on the Dimilin 2L stamped, accepted label. I'll refer you to pages 8 and 9 of the attached Dimilin 2L stamped label, dated 6/27/14 – you'll see that the expanded uses are on this label. Additionally, the changes in preharvest interval (from 21 days to 7 days) and retreatment interval (from 90 days to 30 days) were taken directly from the text of the Dimilin 2L label

If you find any additional language that doesn't seem to be supported, please let me know what it is, so that I can find the corresponding language on the Dimilin 2L label.

Raymat Crop Science, Inc. gets their diflubenzuron from [REDACTED] so are Formulator's Exempt for generic data. The current stamped label for [REDACTED] contains citrus as an approved use site, so this should encompass the new uses added to the label. If that is not acceptable, please let me know, and I will ask [REDACTED] to add that use to their product label.

Best Regards,
Leanne Pruett

From: Kumar, Rita [<mailto:Kumar.Rita@epa.gov>]
Sent: Wednesday, October 01, 2014 12:36 PM
To: Leanne Pruett
Subject: FW: Cavalier 2L labeling (EPA Reg. No. 89799-1)

I don't think this got sent to you.

From: Kumar, Rita
Sent: Wednesday, October 01, 2014 12:34 PM
To: Kumar, Rita
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

The other issue is that your source product does not have the expanded citrus use. I think for that also you need to make an offer to pay to Chemtura, and also ask Chemtura if any data were cited to support this use expansion.

Let us hope we can resolve this quickly.
Rita

From: Kumar, Rita
Sent: Wednesday, October 01, 2014 11:49 AM

Product ingredient source information may be entitled to confidential treatment

To: 'Leanne Pruett'

Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Hi Leanne: There is one more issue with this amendment that needs to be resolved. Can you please verify that no additional data were submitted by Chemtura to support the citrus use expansion? Also, some other label changes were made at the same time (reduced PHI?), which were supported by data. Did you make those changes in this label? If yes, then please either cite appropriate data and make an offer to pay to Chemtura, or delete those changes.

Thanks,

Rita

From: Leanne Pruett [mailto:Leanne@PyxisRC.com]

Sent: Tuesday, September 30, 2014 9:22 AM

To: Kumar, Rita

Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Hi, Rita –

Here are copies of the updated label ('clean' and 'tracked'), with the First Aid and Precautionary Statements added to the supplemental label.

Best Regards,

Leanne

From: Kumar, Rita [mailto:Kumar.Rita@epa.gov]

Sent: Monday, September 29, 2014 4:18 PM

To: Leanne Pruett

Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Importance: High

Hi Leanne: The revised label is fine, but the supplemental label should have the First Aid and Precautionary Statements (including Env. Haz) on it. Can you send revised label to me by tomorrow morning?

Thanks,

Rita

From: Leanne Pruett [mailto:Leanne@PyxisRC.com]

Sent: Friday, September 26, 2014 3:55 PM

To: Kumar, Rita

Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Thanks, Rita!

From: Kumar, Rita [mailto:Kumar.Rita@epa.gov]

Sent: Friday, September 26, 2014 1:30 PM

To: Leanne Pruett

Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

I have been busy with some PRIAs. This should be done by next week.

Rita

From: Leanne Pruett [mailto:Leanne@PyxisRC.com]

Sent: Friday, September 26, 2014 11:48 AM

To: Kumar, Rita
Subject: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Hi, Rita –

Raymat is just about to start printing of their 2015 labels. They would like to print up the new Cavalier 2L product label, but if EPA holds up the approval of the label much longer, they will not be able to do so.

Can you tell me when we can expect to see the approved amendment for this label?

Thanks,
Leanne Pruett

From: Leanne Pruett
Sent: Monday, September 15, 2014 8:21 PM
To: 'Kumar, Rita'
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Hi, Rita –

Here's the updated label – I looked carefully, so I hope I caught all typo's.

You'll note that I made the changes to the livestock and poultry premises as I indicated in the e-mail I sent you earlier this evening.

Best Regards,
Leanne Pruett

From: Kumar, Rita [<mailto:Kumar.Rita@epa.gov>]
Sent: Friday, September 12, 2014 1:22 PM
To: Leanne Pruett
Subject: FW: 400-461 Dimilin 2L - BiOp label revisions

I forgot the attachment. Here it is.
Rita

From: Kumar, Rita
Sent: Friday, September 12, 2014 1:12 PM
To: Leanne Pruett
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Dear Leanne: Please see my comments to the draft label dated 9/9/2014:

1. On page 3, change the heading Spray Drift Labeling to Spray Drift Management.
2. Across the board including supplemental label, delete the terms "unique" and "distinctive" as descriptors for mode of action.
3. On page 8 under site Barley etc., move the last bullet under "Important" to Restrictions.
4. On page 11 under site Leafy Brassica etc., move the last bullet under "Important" to Restrictions.
5. On page 13 under site Rice, move the second, third, and fourth bullets under "Important" to Restrictions.
6. On page 16 and in the supplemental label, under Lepidopterous Miners, make sure that you want to leave the repeat application interval as 90 days, and not change to 30 days. This might be a typographical error.

7. On page 18 under site Pear, move the last bullet under "Important" to Restrictions.
8. On page 19 under site Stone Fruits, change "per year" to "per season" in the second bullet under Restrictions.
9. On page 21 under Livestock and Poultry Premises, move the last sentence in Spot Treatment for Flies to Restrictions.
10. We have recently approved Chemtura label Dimilin 4L (400-474, copy attached) to reflect the changes required by NMFS for livestock and poultry premises. Basically, the broadcast and band applications at the high rate of 8.2 lb a.i./A were restricted to indoor use, and outdoor uses are restricted to spot treatments only, not to exceed 0.117 lbs a.i./A.

The following revisions must be made in the draft Supplemental label starting from page 26 in this draft:

1. Across the board, delete the terms "unique" and "distinctive" as descriptors for mode of action.
2. Add the ingredient statement to the first page (page 26 in this draft).
3. On page 26, in the last sentence starting with "This supplemental label expires.....", please state that the supplemental label must not be used or distributed after the expiration date. You omitted "not" from the current draft.
4. On page 31 under Application Instructions, spray volume is 50-100 gallons which is different from the main label for citrus (50-1000 gallons on page 15). Please resolve this discrepancy.
5. On page 32 under Lepidopterous Miners, change the reapplication interval from 90 days to 30 days, to be consistent with the full label.
6. On page 32 under Adjuvants, delete "petroleum" from the first sentence.

Please review your label revisions carefully before sending to me. There were too many typos in this draft.

Regards,
Rita

From: Leanne Pruett <Leanne@PyxisRC.com>
Sent: Tuesday, September 9, 2014 3:46 PM
To: Kumar, Rita
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Thanks, Rita –

Here are copies of the updated label, both tracked and clean versions.

Updates took place in the citrus portion of the label (took out a phrase under Asian Citrus Psyllid use directions; added a sentence to the Adjuvants directions).

Best Regards,
Leanne Pruett

From: Kumar, Rita [mailto:Kumar.Rita@epa.gov]
Sent: Tuesday, September 09, 2014 3:22 PM
To: Leanne Pruett
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Please send me the updated label now, so that the next revision can be final.
Rita

From: Leanne Pruett [mailto:Leanne@PyxisRC.com]
Sent: Tuesday, September 09, 2014 2:29 PM
To: Kumar, Rita
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Thanks for the update, Rita.

Raymat has asked if they can add another sentence onto the label. I told them they couldn't do it, but if you're going to do another round of revisions, can I add that sentence in? Or can I send you an updated label now with the additional sentence, to look at while you review?

Best Regards,
Leanne

From: Kumar, Rita [mailto:Kumar.Rita@epa.gov]
Sent: Tuesday, September 09, 2014 11:53 AM
To: Leanne Pruett
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Hi Leanne: I am reviewing your label this week. There will be one more round of revisions, but we will work on it promptly.
Rita

From: Leanne Pruett [mailto:Leanne@PyxisRC.com]
Sent: Monday, September 08, 2014 1:52 PM
To: Kumar, Rita
Subject: FW: 400-461 Dimilin 2L - BiOp label revisions

Hi, Rita --

I wanted to check with you regarding the status of the pending Cavalier 2L label amendment (EPA Reg. No. 89799-1).

The client is anxious to be able to print the product label for 2015, and time is getting short.

You can call me at (919) 324-2145 or e-mail me back with an update, whichever you prefer.

Thanks,
Leanne Pruett
Pyxis Regulatory Consulting

From: Leanne Pruett
Sent: Friday, August 08, 2014 11:04 AM
To: 'Kumar, Rita'
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Hi, Rita --

Sorry it took me a while to get back to you with this label update (I had some computer problems!).

We actually have already updated our Cavalier 2L label to include all the new language on the Dimilin 2L label, but I did go through the label one more time, and did find a few things I forgot to update.

I think the attached label should be correct and should have all the necessary, updated language for Raymat's Cavalier 2L label.

NOTE – In Dimilin 2L's label, they had the new language from the Environmental Hazards statement repeated in their Spray Drift section. Since the language is so prominent in the Environmental Hazards section of the label, I did not duplicate that language in Cavalier 2L's Spray Drift section. If you want me to add it, please let me know.

Best Regards,
Leanne Pruett

From: Kumar, Rita [<mailto:Kumar.Rita@epa.gov>]
Sent: Tuesday, July 22, 2014 2:11 PM
To: Leanne Pruett
Subject: FW: 400-461 Dimilin 2L - BiOp label revisions

Dear Leanne: Please see attached recently approved label with cover letter for Dimilin 2L; 400-461. Your label should be fairly similar in use directions, restrictions, and precautions.

Please let me know if you have any questions.
Regards,
Rita

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
401 M Street, S.W.
WASHINGTON, D.C. 20460

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DATA MATRIX

Date: October 2, 2014		EPA Reg. No./File Symbol: 89799-1		Page 1 of 3
Applicant's/Registrant's Name & Address: Raymat Crop Science, Inc. 440 Boulder Ct., Suite 300, Pleasanton CA 94566		Product: Cavalier 2L		
Ingredient: Diflubenzuron (CAS No. 35367-38-5)				
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status
SERIES 61	PRODUCT CHEMISTRY REPORT			
830.1550	Product Identity and Composition	49102901	Raymat Crop Science, Inc.	OWN
830.1600	Description of Materials used to produce product	49102901	Raymat Crop Science, Inc.	OWN
830.1620	Description of Production Process			Not Required ¹
830.1650	Description of Formulation Process	49102901	Raymat Crop Science, Inc.	OWN
830.1670	Discussion of Formation of Impurities	49102901	Raymat Crop Science, Inc.	OWN
830.1700	Preliminary Analysis			Not Required ²
830.1750	Certified Limits	49102901	Raymat Crop Science, Inc.	OWN
830.1800	Enforcement Analytical Method	49102901	Raymat Crop Science, Inc.	OWN
SERIES 63	PHYSICAL-CHEMICAL CONSTANTS			
830.6302	Color	49102902	Raymat Crop Science, Inc.	OWN
830.6303	Physical State	49102902	Raymat Crop Science, Inc.	OWN
830.6304	Odor	49102902	Raymat Crop Science, Inc.	OWN
830.6313	Stability to Normal, Elevated T's, Metals, Metal Ions			Not Required ³
Signature		Name and Title: P. Leanne Pruett, Regulatory Consultant		Date: 10-2-2014

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DATA MATRIX

Date: October 2, 2014		EPA Reg. No./File Symbol: 89799-1		Page 2 of 3	
Applicant's/Registrant's Name & Address: Raymat Crop Science, Inc. 440 Boulder Ct., Suite 300, Pleasanton CA 94566		Product: Cavalier 2L			
Ingredient: Diflubenzuron (CAS No. 35367-38-5)					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
SERIES 61	PHYSICAL-CHEMICAL CONSTANTS (continued)				
830.6314	Oxidation / Reduction: chemical incompatibility	49102902	Raymat Crop Science, Inc.	OWN	
830.6315	Flammability	49102902	Raymat Crop Science, Inc.	OWN	
830.6316	Explosibility				Waiver ⁴
830.6317	Storage Stability	49208701	Raymat Crop Science, Inc.	OWN	
830.6319	Miscibility				Waiver ⁵
830.6320	Corrosion Characteristics	49208701	Raymat Crop Science, Inc.	OWN	
830.6321	Dielectric Breakdown Voltage				Waiver ⁵
830.7000	pH	49102902	Raymat Crop Science, Inc.	OWN	
830.7050	UV / Visible Absorption				Not Required ³
830.7100	Viscosity	49102902	Raymat Crop Science, Inc.	OWN	
830.7200	Melting Point / Melting Range				Not Required ³
830.7220	Boiling Point / Boiling Range				Not Required ³
830.7300	Density / Relative Density / Bulk Density	49102902	Raymat Crop Science, Inc.	OWN	
830.7370	Dissociation Constant				Not Required ³
Signature			Name and Title: P. Leanne Pruett, Regulatory Consultant		Date: 10-2-2014

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DATA MATRIX

Date: October 2, 2014	EPA Reg. No./File Symbol: 89799-1	Page 3 of 3
Applicant's/Registrant's Name & Address: Raymat Crop Science, Inc. 440 Boulder Ct., Suite 300, Pleasanton CA 94566		
Product: Cavalier 2L		
Ingredient: Diflubenzuron (CAS No. 35367-38-5)		

Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
SERIES 61					
830.7520	PHYSICAL-CHEMICAL CONSTANTS (continued)				
	Particle Size, Fiber Length, diameter distribution				Waiver ¹
830.7550, .7560, .7570	N-octanol/water Partition Coefficient				Not Required ³
830.7840, .7860	Water Solubility				Not Required ³
830.7950	Vapor Pressure				Not Required ³
SERIES 870					
870.1100	ACUTE TOXICITY				
	Acute Oral Toxicity	44574504	Chemtura Corporation	OLD	
870.1200	Acute Dermal Toxicity	44574505	Chemtura Corporation	OLD	
870.1300	Acute Inhalation Toxicity	44574506	Chemtura Corporation	OLD	
870.2400	Acute Eye Irritation	44574507	Chemtura Corporation	OLD	
870.2500	Acute Dermal Irritation	44574508	Chemtura Corporation	OLD	
870.2600	Skin Sensitization	44574509	Chemtura Corporation	OLD	
SERIES 860					
	RESIDUE CHEMISTRY				
860.1500, 860.1520	Crop Field Trials, Residues in Food Feed - Citrus	48138301	Chemtura Corporation	PAY	

Signature

Name and Title:
P. Leanne Pruett, Regulatory Consultant

Date:
10-2-2014

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Endnotes for Cavalier 2L Data Matrix

October 2, 2014

¹830.1620 – Per OPPTS 830.1000, these data are not required for the registration of an end-use product. See 830.160 for formulation process information

²830.1700 – This product does not consist solely of the technical grade active ingredient (TGAI), and is not produced by an integrated system, therefore, per OPPTS 830.1700, these data are not required

³830.6313, 830.7050, 830.7200, 830.7220, 830.7370, 830.7550, 830.7560, 830.7570, 830.7840, 830.7860, 830.7950 – These data are not required for registration of an end use product.

⁴830.6316 – Cavalier 2L does not have the chemical bonds or functional groups associated with explosive chemicals, therefore this data is not required. Please refer to the Confidential Statement of Formula for additional information on the composition of Cavalier 2L

⁵830.6319 – Cavalier 2L is not an emulsifiable concentrate to be diluted with any solvent (including petroleum solvents); therefore, miscibility data is not applicable.

⁶830.6321 – Cavalier 2L is not proposed for use around electrical equipment. Therefore this data is not applicable.

⁷830.7520 – Cavalier 2L is not water insoluble, and is not a fibrous material, therefore these data are not applicable.

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DATA MATRIX

Date: October 2, 2014	EPA Reg. No./File Symbol: 89799-1	Page 1 of 3
Applicant's/Registrant's Name & Address: Raymat Crop Science, Inc. 440 Boulder Ct., Suite 300, Pleasanton CA 94566		
Ingredient: Diflubenzuron (CAS No. 35367-38-5)		

Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
			Raymat Crop Science, Inc.	OWN	
			Raymat Crop Science, Inc.	OWN	
					Not Required ¹
			Raymat Crop Science, Inc.	OWN	
			Raymat Crop Science, Inc.	OWN	
					Not Required ²
			Raymat Crop Science, Inc.	OWN	
			Raymat Crop Science, Inc.	OWN	
			Raymat Crop Science, Inc.	OWN	
			Raymat Crop Science, Inc.	OWN	
			Raymat Crop Science, Inc.	OWN	
			Raymat Crop Science, Inc.	OWN	

Signature

P. Leanne Pruett

Name and Title:
P. Leanne Pruett, Regulatory Consultant

Date:

10-2-2014

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DATA MATRIX

Date: October 2, 2014	EPA Reg. No./File Symbol: 89799-1	Page 2 of 3
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Product: Cavalier 2L		
Ingredient: Diflubenzuron (CAS No. 35367-38-5)		

Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
			Raymat Crop Science, Inc.	OWN	
			Raymat Crop Science, Inc.		
					Waiver ⁴
					Waiver ⁵
					Waiver ⁶
			Raymat Crop Science, Inc.	OWN	
			Raymat Crop Science, Inc.	OWN	Not Required ³
			Raymat Crop Science, Inc.	OWN	Not Required ³
			Raymat Crop Science, Inc.	OWN	Not Required ³
			Raymat Crop Science, Inc.	OWN	Not Required ³

Signature 	Name and Title: P. Leanne Pruett, Regulatory Consultant	Date: 10-2-2014
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DATA MATRIX

Date: October 2, 2014		EPA Reg. No./File Symbol: 89799-1		Page 3 of 3	
Applicant's/Registrant's Name & Address: Raymat Crop Science, Inc. 440 Boulder Ct., Suite 300, Pleasanton CA 94566		Product: Cavalier 2L			
Ingredient: Diflubenzuron (CAS No. 35367-38-5)					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
					Waiver
					Not Required ³
					Not Required ³
					Not Required ³
			Chemtura Corporation	OLD	
			Chemtura Corporation	OLD	
			Chemtura Corporation	OLD	
			Chemtura Corporation	OLD	
			Chemtura Corporation	OLD	
			Chemtura Corporation	OLD	
			Chemtura Corporation	PAY	
Signature		Name and Title: P. Leanne Pruett, Regulatory Consultant		Date: 10-2-2014	

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Endnotes for Cavalier 2L Data Matrix
October 2, 2014

¹830.1620 – [REDACTED]

²830.1700 – [REDACTED]

³830.6313, 830.7050, 830.7200, 830.7220, 830.7370, 830.7550, 830.7560, 830.7570,
830.7840, 830.7860, 830.7950 – [REDACTED]

⁴830.6316 – [REDACTED]

⁵830.6319 – [REDACTED]

⁶830.6321 – [REDACTED]

⁷830.7520 – [REDACTED]

Kumar, Rita

From: Leanne Pruett <Leanne@PyxisRC.com>
Sent: Wednesday, October 01, 2014 4:16 PM
To: Kumar, Rita
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Thanks, Rita –

I'm communicating with the registrants, and I'm hoping I can get this worked out quickly.

Best,
Leanne

From: Kumar, Rita [mailto:Kumar.Rita@epa.gov]
Sent: Wednesday, October 01, 2014 4:15 PM
To: Leanne Pruett
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

One more thing, formulator's exemptions remains in place for all earlier uses. Just the most recent changes are not supported, and data must be cited.
Rita

From: Leanne Pruett [mailto:Leanne@PyxisRC.com]
Sent: Wednesday, October 01, 2014 4:01 PM
To: Kumar, Rita
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

OK – Thanks, Rita –

I'll get back to you soon regarding what we will do about this pending amendment.

Best Regards,
Leanne

From: Kumar, Rita [mailto:Kumar.Rita@epa.gov]
Sent: Wednesday, October 01, 2014 3:59 PM
To: Leanne Pruett
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Current source product needs to be updated to citrus crop group 10-10, after they have made an offer to pay to Chemtura. The use citrus is non-specific and could technically include the whole crop group, but we know for a fact that the site was expanded to crop group only recently. So, I am certain that you need to work with Chemtura to get these changes on the label.

I apologize for not catching this earlier. I just assumed that your data matrix would include all necessary citations.
Thanks,
Rita

From: Leanne Pruett [mailto:Leanne@PyxisRC.com]
Sent: Wednesday, October 01, 2014 3:48 PM
To: Kumar, Rita
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Oh – you're right –

[REDACTED]

But my argument still stands – the [REDACTED] label still allows use on citrus.

If you don't agree that the current source supports the label update, I will check with the registrants and see if they will allow me to update the labeling without formulator's exemption – If they will allow me to do so, I can send you an updated data matrix and send out offers to pay to Chemtura.

Best Regards,
Leanne

From: Kumar, Rita [mailto:Kumar.Rita@epa.gov]
Sent: Wednesday, October 01, 2014 3:39 PM
To: Leanne Pruett
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Leanne: That is exactly my dilemma. You are citing [REDACTED] as your source material, see your e-mail dated June 13 in which you sent me a revised formulator's exemption form. And you are taking uses from a Chemtura label to update your product. I need citations for Chemtura data that were used to update 400-461 with expanded citrus use, reduced PHI and reduced retreatment interval for citrus.

Thanks,
Rita

From: Leanne Pruett [mailto:Leanne@PyxisRC.com]
Sent: Wednesday, October 01, 2014 3:00 PM
To: Kumar, Rita
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Hi, Rita –

Looking a little further into the issue of what the technical diflubenzuron will support, I see that Chemtura updated their Diflubenzuron 90% Concentrate (EPA Reg. No. 400-466) to add "Only for formulation into an insecticide growth regulator for (1) the following uses: . . .citrus crop group 10-10 (for citrus group 10-10, formulations are limited to Water Dispersible Granular and Flowable Concentrate products)".

However, their label prior to this update listed "formulation into an insecticide growth regulator for (1) the following uses: . . .oranges, grapefruit, tangerines, . . ." which would not have been sufficient to support the label expansion from certain citrus fruits to the entire crop group

Chemtura's Technical Diflubenzuron (EPA Reg. No. 400-467), like [REDACTED]
[REDACTED] indicates "Only for formulation into an insecticide growth regulator for the following uses: . . .citrus . . .". I believe this does support the label expansion from certain citrus fruits to the entire crop group.

From: Leanne Pruett
Sent: Wednesday, October 01, 2014 2:45 PM
To: 'Kumar, Rita'
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Hi, Rita –

Every change that I included on this Cavalier 2L label amendment was pulled directly from the Chemtura Dimilin 2L label.

You specifically mention the expanded citrus use – I assume you are referring to the expansion from use on 'orange, grapefruit, tangerine, pummelo and their hybrids' to Citrus Crop Group 10-10 (and all related listed crops). This expansion is on the Dimilin 2L stamped, accepted label. I'll refer you to pages 8 and 9 of the attached Dimilin 2L stamped label, dated 6/27/14 – you'll see that the expanded uses are on this label. Additionally, the changes in preharvest interval (from 21 days to 7 days) and retreatment interval (from 90 days to 30 days) were taken directly from the text of the Dimilin 2L label

If you find any additional language that doesn't seem to be supported, please let me know what it is, so that I can find the corresponding language on the Dimilin 2L label.

Raymat Crop Science, Inc. gets their diflubenzuron from [REDACTED] so are Formulator's Exempt for generic data. The current stamped label for [REDACTED] contains citrus as an approved use site, so this should encompass the new uses added to the label. If that is not acceptable, please let me know, and I will ask [REDACTED] to add that use to their product label.

Best Regards,
Leanne Pruett

From: Kumar, Rita [<mailto:Kumar.Rita@epa.gov>]
Sent: Wednesday, October 01, 2014 12:36 PM
To: Leanne Pruett
Subject: FW: Cavalier 2L labeling (EPA Reg. No. 89799-1)

I don't think this got sent to you.

From: Kumar, Rita
Sent: Wednesday, October 01, 2014 12:34 PM
To: Kumar, Rita
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

The other issue is that your source product does not have the expanded citrus use. I think for that also you need to make an offer to pay to Chemtura, and also ask Chemtura if any data were cited to support this use expansion.

Let us hope we can resolve this quickly.
Rita

From: Kumar, Rita
Sent: Wednesday, October 01, 2014 11:49 AM
To: 'Leanne Pruett'
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Hi Leanne: There is one more issue with this amendment that needs to be resolved. Can you please verify that no additional data were submitted by Chemtura to support the citrus use expansion? Also, some other label changes were made at the same time (reduced PHI?), which were supported by data. Did you make those changes in this label? If yes, then please either cite appropriate data and make an offer to pay to Chemtura, or delete those changes.

Thanks,

Rita

From: Leanne Pruett [<mailto:Leanne@PyxisRC.com>]

Sent: Tuesday, September 30, 2014 9:22 AM

To: Kumar, Rita

Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Hi, Rita –

Here are copies of the updated label ('clean' and 'tracked'), with the First Aid and Precautionary Statements added to the supplemental label.

Best Regards,

Leanne

From: Kumar, Rita [<mailto:Kumar.Rita@epa.gov>]

Sent: Monday, September 29, 2014 4:18 PM

To: Leanne Pruett

Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Importance: High

Hi Leanne: The revised label is fine, but the supplemental label should have the First Aid and Precautionary Statements (including Env. Haz) on it. Can you send revised label to me by tomorrow morning?

Thanks,

Rita

From: Leanne Pruett [<mailto:Leanne@PyxisRC.com>]

Sent: Friday, September 26, 2014 3:55 PM

To: Kumar, Rita

Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Thanks, Rita!

From: Kumar, Rita [<mailto:Kumar.Rita@epa.gov>]

Sent: Friday, September 26, 2014 1:30 PM

To: Leanne Pruett

Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

I have been busy with some PRIAs. This should be done by next week.

Rita

From: Leanne Pruett [<mailto:Leanne@PyxisRC.com>]

Sent: Friday, September 26, 2014 11:48 AM

To: Kumar, Rita

Subject: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Hi, Rita –

Raymat is just about to start printing of their 2015 labels. They would like to print up the new Cavalier 2L product label, but if EPA holds up the approval of the label much longer, they will not be able to do so.

Can you tell me when we can expect to see the approved amendment for this label?

Thanks,
Leanne Pruett

From: Leanne Pruett
Sent: Monday, September 15, 2014 8:21 PM
To: 'Kumar, Rita'
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Hi, Rita --

Here's the updated label -- I looked carefully, so I hope I caught all typo's.

You'll note that I made the changes to the livestock and poultry premises as I indicated in the e-mail I sent you earlier this evening.

Best Regards,
Leanne Pruett

From: Kumar, Rita [<mailto:Kumar.Rita@epa.gov>]
Sent: Friday, September 12, 2014 1:22 PM
To: Leanne Pruett
Subject: FW: 400-461 Dimilin 2L - BiOp label revisions

I forgot the attachment. Here it is.
Rita

From: Kumar, Rita
Sent: Friday, September 12, 2014 1:12 PM
To: Leanne Pruett
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Dear Leanne: Please see my comments to the draft label dated 9/9/2014:

1. On page 3, change the heading Spray Drift Labeling to Spray Drift Management.
2. Across the board including supplemental label, delete the terms "unique" and "distinctive" as descriptors for mode of action.
3. On page 8 under site Barley etc., move the last bullet under "Important" to Restrictions.
4. On page 11 under site Leafy Brassica etc., move the last bullet under "Important" to Restrictions.
5. On page 13 under site Rice, move the second, third, and fourth bullets under "Important" to Restrictions.
6. On page 16 and in the supplemental label, under Lepidopterous Miners, make sure that you want to leave the repeat application interval as 90 days, and not change to 30 days. This might be a typographical error.
7. On page 18 under site Pear, move the last bullet under "Important" to Restrictions.
8. On page 19 under site Stone Fruits, change "per year" to "per season" in the second bullet under Restrictions.

9. On page 21 under Livestock and Poultry Premises, move the last sentence in Spot Treatment for Flies to Restrictions.

10. We have recently approved Chemtura label Dimilin 4L (400-474, copy attached) to reflect the changes required by NMFS for livestock and poultry premises. Basically, the broadcast and band applications at the high rate of 8.2 lb a.i./A were restricted to indoor use, and outdoor uses are restricted to spot treatments only, not to exceed 0.117 lbs a.i./A.

The following revisions must be made in the draft Supplemental label starting from page 26 in this draft:

1. Across the board, delete the terms "unique" and "distinctive" as descriptors for mode of action.
2. Add the ingredient statement to the first page (page 26 in this draft).
3. On page 26, in the last sentence starting with "This supplemental label expires.....", please state that the supplemental label must not be used or distributed after the expiration date. You omitted "not" from the current draft.
4. On page 31 under Application Instructions, spray volume is 50-100 gallons which is different from the main label for citrus (50-1000 gallons on page 15). Please resolve this discrepancy.
5. On page 32 under Lepidopterous Miners, change the reapplication interval from 90 days to 30 days, to be consistent with the full label.
6. On page 32 under Adjuvants, delete "petroleum" from the first sentence.

Please review your label revisions carefully before sending to me. There were too many typos in this draft.

Regards,
Rita

From: Leanne Pruett <Leanne@PyxisRC.com>
Sent: Tuesday, September 9, 2014 3:46 PM
To: Kumar, Rita
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Thanks, Rita –

Here are copies of the updated label, both tracked and clean versions.

Updates took place in the citrus portion of the label (took out a phrase under Asian Citrus Psyllid use directions; added a sentence to the Adjuvants directions).

Best Regards,
Leanne Pruett

From: Kumar, Rita [<mailto:Kumar.Rita@epa.gov>]
Sent: Tuesday, September 09, 2014 3:22 PM
To: Leanne Pruett
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Please send me the updated label now, so that the next revision can be final.
Rita

From: Leanne Pruett [<mailto:Leanne@PyxisRC.com>]
Sent: Tuesday, September 09, 2014 2:29 PM

To: Kumar, Rita
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Thanks for the update, Rita.

Raymat has asked if they can add another sentence onto the label. I told them they couldn't do it, but if you're going to do another round of revisions, can I add that sentence in? Or can I send you an updated label now with the additional sentence, to look at while you review?

Best Regards,
Leanne

From: Kumar, Rita [<mailto:Kumar.Rita@epa.gov>]
Sent: Tuesday, September 09, 2014 11:53 AM
To: Leanne Pruett
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Hi Leanne: I am reviewing your label this week. There will be one more round of revisions, but we will work on it promptly.
Rita

From: Leanne Pruett [<mailto:Leanne@PyxisRC.com>]
Sent: Monday, September 08, 2014 1:52 PM
To: Kumar, Rita
Subject: FW: 400-461 Dimilin 2L - BiOp label revisions

Hi, Rita –

I wanted to check with you regarding the status of the pending Cavalier 2L label amendment (EPA Reg. No. 89799-1).

The client is anxious to be able to print the product label for 2015, and time is getting short.

You can call me at (919) 324-2145 or e-mail me back with an update, whichever you prefer.

Thanks,
Leanne Pruett
Pyxis Regulatory Consulting

From: Leanne Pruett
Sent: Friday, August 08, 2014 11:04 AM
To: 'Kumar, Rita'
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Hi, Rita –

Sorry it took me a while to get back to you with this label update (I had some computer problems!).

We actually have already updated our Cavalier 2L label to include all the new language on the Dimilin 2L label, but I did go through the label one more time, and did find a few things I forgot to update.

I think the attached label should be correct and should have all the necessary, updated language for Raymat's Cavalier 2L label.

NOTE – In Dimilin 2L's label, they had the new language from the Environmental Hazards statement repeated in their Spray Drift section. Since the language is so prominent in the Environmental Hazards section of the label, I did not duplicate that language in Cavalier 2L's Spray Drift section. If you want me to add it, please let me know.

Best Regards,
Leanne Pruett

From: Kumar, Rita [<mailto:Kumar.Rita@epa.gov>]
Sent: Tuesday, July 22, 2014 2:11 PM
To: Leanne Pruett
Subject: FW: 400-461 Dimilin 2L - BiOp label revisions

Dear Leanne: Please see attached recently approved label with cover letter for Dimilin 2L; 400-461. Your label should be fairly similar in use directions, restrictions, and precautions.

Please let me know if you have any questions.

Regards,
Rita

Kumar, Rita

*Resubmission:
5958508*

From: Leanne Pruett <Leanne@PyxisRC.com>
Sent: Tuesday, September 30, 2014 9:22 AM
To: Kumar, Rita
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)
Attachments: 089799-00001.20140930.Cavalier2L_lblamd add citrus cg 10-10 plus EPA comments and citrus water volume update-tracked.pdf; 089799-00001.20140930.Cavalier2L_lblamd add citrus cg 10-10 plus EPA comments and citrus water volume update.pdf

Hi, Rita –

Here are copies of the updated label ('clean' and 'tracked'), with the First Aid and Precautionary Statements added to the supplemental label.

Best Regards,
Leanne

From: Kumar, Rita [mailto:Kumar.Rita@epa.gov]
Sent: Monday, September 29, 2014 4:18 PM
To: Leanne Pruett
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)
Importance: High

Hi Leanne: The revised label is fine, but the supplemental label should have the First Aid and Precautionary Statements (including Env. Haz) on it. Can you send revised label to me by tomorrow morning?
Thanks,
Rita

From: Leanne Pruett [mailto:Leanne@PyxisRC.com]
Sent: Friday, September 26, 2014 3:55 PM
To: Kumar, Rita
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Thanks, Rita!

From: Kumar, Rita [mailto:Kumar.Rita@epa.gov]
Sent: Friday, September 26, 2014 1:30 PM
To: Leanne Pruett
Subject: RE: Cavalier 2L labeling (EPA Reg. No. 89799-1)

I have been busy with some PRIAs. This should be done by next week.
Rita

From: Leanne Pruett [mailto:Leanne@PyxisRC.com]
Sent: Friday, September 26, 2014 11:48 AM
To: Kumar, Rita
Subject: Cavalier 2L labeling (EPA Reg. No. 89799-1)

Hi, Rita –

Raymat is just about to start printing of their 2015 labels. They would like to print up the new Cavalier 2L product label, but if EPA holds up the approval of the label much longer, they will not be able to do so.

Can you tell me when we can expect to see the approved amendment for this label?

Thanks,
Leanne Pruett

From: Leanne Pruett
Sent: Monday, September 15, 2014 8:21 PM
To: 'Kumar, Rita'
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Hi, Rita –

Here's the updated label – I looked carefully, so I hope I caught all typo's.

You'll note that I made the changes to the livestock and poultry premises as I indicated in the e-mail I sent you earlier this evening.

Best Regards,
Leanne Pruett

From: Kumar, Rita [<mailto:Kumar.Rita@epa.gov>]
Sent: Friday, September 12, 2014 1:22 PM
To: Leanne Pruett
Subject: FW: 400-461 Dimilin 2L - BiOp label revisions

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Sent: Friday, September 12, 2014 1:12 PM
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Sent: Tuesday, September 09, 2014 2:29 PM

Kumar, Rita

*Resubmission:
5957884*

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Sent: Monday, September 15, 2014 7:20 PM
To: Kumar, Rita
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Hi, Rita –

I will have the label for you tomorrow, but I have to question the update for spot treatment for the livestock and premise area.

Looking at the stamped label you provided, on page 7, the use rate for spot treatment (outdoor) is indicated in the chart as 3.75 fl oz. per 15 gallons, and that treats 600 ft² (not 1 acre) which works out to be 8.5 lbs a.i./A. :

Dimilin 4L (from EPA Stamped Label dated 9/3/2014)

House fly Stable fly Face Fly Horn Fly	6 fl. oz. 1000 ft ³ In 2-20 gals. water Per 1000 ft ²	Broadcast Application: Apply as a whole house broadcast spray or spot treatment to the litter following de-caking, as well as to floors, walls, posts, cage frames and ceilings. When treating the litter, pay particular attention to moist areas under feed and water lines. Apply in sufficient volume to uniformly and thoroughly wet the litter and other surfaces- spray volume will vary depending on the depth of litter being treated.
	3.75 fl. ozs. In 15 gals. water	Spot Treatments: Apply as a directed spray at a volume of 1 quart of spray solution to 10 sq.ft. of surface area. 15 gallons of spray solution will treat 600 sq.ft. Begin applications when flies first appear. Reapply as needed when adult fly numbers begin to increase, typically at 2- 3 week intervals.

In the specific restriction section, at the beginning of the use directions, the restriction for spot treatment indicates:

Spot treatment applications: For outdoor use, do not apply more than 3.75 fl. ozs. per acre per application, and do not exceed 17 applications per year. For indoor use, do not apply more than 260 fl. ozs. per acre per year.

The specific restriction for spot treatment indicating a use of 3.75 fl oz per acre, which works out to be 0.117 lbs ai/A is vastly different than the rate in the use chart, and also the rate which is currently on both the Cavalier 2L and the Dimilin 2L (EPA Reg. No. 400-461) labels (5 fl oz. per 400 ft², or 8.5 lbs ai/A), and I question the accuracy and efficacy of 0.117 lbs ai/A – I believe that the restriction is in error, and the 3.75 fl. oz. on the Dimilin 4L is for a 600 ft² area, not an acre.

A new use rate for spot treatment of 0.117 lbs ai/A is a 72-fold reduction in use rate, and that is not acceptable, nor is it supported by any data that has been provided or on any approved labels other than the Dimilin 4L – so I cannot add a restriction to the label indicating that spot treatment applications outdoors are limited to 7.5 fl. oz per acre per application.

I will be happy to add the restrictions indicating:

- band and broadcast applications are for indoor use only
- spot treatment applications outdoors at a rate of 5 fl oz/ per 400 ft² shall not exceed 17 applications per year
- spot treatment applications indoors shall not exceed 8.2 lbs ai/A (524 fl oz.) per year

These restrictions will be on the updated label that you will receive shortly.

Best Regards,
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*Resubmission:
S 957611*

From: Leanne Pruett <Leanne@PyxisRC.com>
Sent: Tuesday, September 09, 2014 3:47 PM
To: Kumar, Rita
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions
Attachments: 089799-00001.20140909.Cavalier2L_lblamd add citrus cg 10-10 plus EPA comments and citrus water volume update-tracked.pdf; 089799-00001.20140909.Cavalier2L_lblamd add citrus cg 10-10 plus EPA comments and citrus water volume update.PDF

Thanks, Rita –

Here are copies of the updated label, both tracked and clean versions.

Updates took place in the citrus portion of the label (took out a phrase under Asian Citrus Psyllid use directions; added a sentence to the Adjuvants directions).

Best Regards,
Leanne Pruett

From: Kumar, Rita [mailto:Kumar.Rita@epa.gov]
Sent: Tuesday, September 09, 2014 3:22 PM
To: Leanne Pruett
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Please send me the updated label now, so that the next revision can be final.
Rita

From: Leanne Pruett [mailto:Leanne@PyxisRC.com]
Sent: Tuesday, September 09, 2014 2:29 PM
To: Kumar, Rita
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Thanks for the update, Rita.

Raymat has asked if they can add another sentence onto the label. I told them they couldn't do it, but if you're going to do another round of revisions, can I add that sentence in? Or can I send you an updated label now with the additional sentence, to look at while you review?

Best Regards,
Leanne

From: Kumar, Rita [mailto:Kumar.Rita@epa.gov]
Sent: Tuesday, September 09, 2014 11:53 AM
To: Leanne Pruett
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Hi Leanne: I am reviewing your label this week. There will be one more round of revisions, but we will work on it promptly.

Rita

From: Leanne Pruett [mailto:Leanne@PyxisRC.com]
Sent: Monday, September 08, 2014 1:52 PM
To: Kumar, Rita
Subject: FW: 400-461 Dimilin 2L - BiOp label revisions

Hi, Rita –

I wanted to check with you regarding the status of the pending Cavalier 2L label amendment (EPA Reg. No. 89799-1).

The client is anxious to be able to print the product label for 2015, and time is getting short.

You can call me at (919) 324-2145 or e-mail me back with an update, whichever you prefer.

Thanks,
Leanne Pruett
Pyxis Regulatory Consulting

*Resubmission:
S 956210*

From: Leanne Pruett
Sent: Friday, August 08, 2014 11:04 AM
To: 'Kumar, Rita'
Subject: RE: 400-461 Dimilin 2L - BiOp label revisions

Hi, Rita –

Sorry it took me a while to get back to you with this label update (I had some computer problems!).

We actually have already updated our Cavalier 2L label to include all the new language on the Dimilin 2L label, but I did go through the label one more time, and did find a few things I forgot to update.

I think the attached label should be correct and should have all the necessary, updated language for Raymat's Cavalier 2L label.

NOTE – In Dimilin 2L's label, they had the new language from the Environmental Hazards statement repeated in their Spray Drift section. Since the language is so prominent in the Environmental Hazards section of the label, I did not duplicate that language in Cavalier 2L's Spray Drift section. If you want me to add it, please let me know.

Best Regards,
Leanne Pruett

From: Kumar, Rita [mailto:Kumar.Rita@epa.gov]
Sent: Tuesday, July 22, 2014 2:11 PM
To: Leanne Pruett
Subject: FW: 400-461 Dimilin 2L - BiOp label revisions

Dear Leanne: Please see attached recently approved label with cover letter for Dimilin 2L; 400-461. Your label should be fairly similar in use directions, restrictions, and precautions.

Please let me know if you have any questions.

Regards,
Rita

Kumar, Rita

From: Kumar, Rita
Sent: Tuesday, July 22, 2014 2:11 PM
To: 'Leanne Pruett'
Subject: FW: 400-461 Dimilin 2L - BiOp label revisions
Attachments: 400-461-20140627.pdf

Dear Leanne: Please see attached recently approved label with cover letter for Dimilin 2L; 400-461. Your label should be fairly similar in use directions, restrictions, and precautions.

Please let me know if you have any questions.

Regards,

Rita

Kumar, Rita

From: Kumar, Rita
Sent: Monday, July 21, 2014 2:24 PM
To: 'Leanne Pruett'
Subject: RE: Pending fast track application for Cavalier 2L (89799-1)

Dear Leanne: I will use this version for the review. We have recently updated the diflubenzuron labels, and I will be requiring some additional changes. Just waiting for the labels to get PM approval, so that I can send you a sample. Can you please remind me which of the Chemtura products is similar to your product?

Thanks,

Rita

Resub:

S 955328

From: Leanne Pruett [mailto:Leanne@PyxisRC.com]
Sent: Sunday, July 20, 2014 3:38 PM
To: Kumar, Rita
Subject: RE: Pending fast track application for Cavalier 2L (89799-1)

Dear Rita –

I am not sure how far along you are with the label review for Cavalier 2L (89799-1), but I have just been alerted to an error in the citrus section of the label.

The high volume ground spray in citrus allows the product to be diluted in 50 – 1000 gallons of water per acre – our label incorrectly says 50 – 100 gallons of water per acre.

I have made that correction on the attached label – nothing else has changed (changes occur on page 15 on both labels). I would appreciate it if you could substitute this 20140720 label for the one sent to you on June 24th.

Thanks,

Leanne Pruett

Pyxis Regulatory Consulting

Resub:

S 955327

From: Leanne Pruett
Sent: Tuesday, June 24, 2014 12:08 PM
To: 'Kumar, Rita'
Subject: RE: Pending fast track application for Cavalier 2L (89799-1)

Hi, Rita –

Attached, please find the Cavalier 2L label, updated as indicated below.

Regarding your point 6:

6. For use site Stonefruits (excluding cherries), the maximum number of applications must be changed from 4 per year to 2 per season. The maximum amount of product is also 32 fl.oz. per season. Also, please explain the restrictions, PHI, and petal fall exception for peach orchards in GA, since these are not on the cited similar product, Dimilin 2L.

The language for use in Georgia comes from Dimilin 2L SLN GA-060002 (I've attached a copy to this e-mail). Also, I did not see a maximum number of 4 applications per year in stonefruits (only 2). I changed 'year' to 'season', but did not see any value that needed changing.

Best Regards,
Leanne Pruett

From: Kumar, Rita [<mailto:Kumar.Rita@epa.gov>]
Sent: Monday, June 16, 2014 6:46 PM
To: Leanne Pruett
Cc: Baris, Reuben
Subject: FW: Pending fast track application for Cavalier 2L (89799-1)

Dear Leanne: I have completed review of this label, and my comments are listed below:

1. You have claimed similarity with Dimilin 2L (400-461) for this product. We are in the process of updating the Environmental Hazard statement for Dimilin 2L. This label needs to be revised similarly, as indicated below:

"ENVIRONMENTAL HAZARDS

This pesticide is toxic to terrestrial juvenile insects and aquatic invertebrates/mollusks/insects. Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

This product may contaminate water through drift of spray in wind. This product has a potential for runoff for several months or more after application. Poorly draining soils and soils with shallow water tables are more prone to produce runoff that contains this product. A level, well maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will reduce the potential for contamination or water from rainfall-runoff. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours. Sound erosion control practices will reduce this product's contribution to surface water contamination.

Bees and other insect pollinators can be exposed to this pesticide from:

- Direct contact during foliar applications, or contact with residues on plant surfaces after foliar applications
- Ingestion of residues in nectar and pollen when the pesticide is applied as a foliar application.

When Using This Product Take Steps To:

- Minimize exposure of this product to bees and other insect pollinators when they are foraging on pollinator attractive plants around the application site.
- Minimize drift of this product on to beehives or to off-site pollinator attractive habitat. Drift of this product onto beehives or off-site to pollinator attractive habitat can result in bee kills."

2. For all use sites, add a new paragraph titled Restrictions, and move all restrictive bulleted statements from the para titled IMPORTANT to Restrictions. This is for clarity and prominence of use restrictions.

3. For use site cotton, the maximum number of applications must be changed back from 6 per year to 6 per season.
4. For use site Leafy Brassica Group, you have titled Turnip Greens as separate from the crop group. Please confirm that turnip greens is not a part of the crop group.
5. For use site Leafy Brassica Group, the maximum number of applications must be changed back from 4 per year to 4 per season.
6. For use site Stonefruits (excluding cherries), the maximum number of applications must be changed from 4 per year to 2 per season. The maximum amount of product is also 32 fl.oz. per season. Also, please explain the restrictions, PHI, and petal fall exception for peach orchards in GA, since these are not on the cited similar product, Dimilin 2L.
7. For use site Stonefruits (excluding cherries), under grasshopper control in peach orchards in GA, delete the sentence about higher listed use rate since there is no rate range for this pest.

Please submit revised label, and address the question about peaches in GA for further consideration of this amendment application. Thanks.

Regards,
Rita

From: Kumar, Rita
Sent: Friday, June 13, 2014 1:30 PM
To: 'Leanne Pruett'
Subject: RE: Pending fast track application for Cavalier 2L (89799-1)

Thanks, Leanne. I will require some label changes to bring this label in compliance with the most recent label for Diflubenzuron 2L, and will write to you when label review is complete.

Regards,
Rita

From: Leanne Pruett [<mailto:Leanne@PyxisRC.com>]
Sent: Friday, June 13, 2014 1:06 PM
To: Kumar, Rita
Cc: Urbanski, Jennifer
Subject: RE: Pending fast track application for Cavalier 2L (89799-1)

Hi, Rita –

[REDACTED]

[REDACTED]

Technical was never registered to Raymat Crop Science, so Formulator's Exemption has been and is still in effect for the Cavalier 2L registration.

I've attached an updated Formulator's Exemption statement, above.

Please let me know what else you need to complete review of this pending amendment.

Best Regards,
Leanne Pruett

NOTE – the CSF's are currently incorrect, as they have [REDACTED] listed as the source of active. Do you want me to submit updated CSF's to you for the files, as a part of this amendment, or can they be submitted at a later date?

From: Kumar, Rita [<mailto:Kumar.Rita@epa.gov>]
Sent: Friday, June 13, 2014 11:33 AM
To: Leanne Pruett
Cc: Urbanski, Jennifer
Subject: Pending fast track application for Cavalier 2L (89799-1)

Dear Leanne: I am reviewing this application and need clarification from you regarding the following:

[REDACTED]

Please respond ASAP with either a revised Formulator's Exemption form or a data matrix for the generic data.

Regards,
Rita

Kumar, Rita

*Resubmission:
S 953817*

From: Leanne Pruett <Leanne@PyxisRC.com>
Sent: Friday, June 13, 2014 1:06 PM
To: Kumar, Rita
Cc: Urbanski, Jennifer
Subject: RE: Pending fast track application for Cavalier 2L (89799-1)
Attachments: 20140613 FormEx Updated - Cavalier 2L Iblamd add citrus cg10.pdf

Hi, Rita –

[REDACTED]

[REDACTED]

Technical was never registered to Raymat Crop Science, so Formulator's Exemption has been and is still in effect for the Cavalier 2L registration.

I've attached an updated Formulator's Exemption statement, above.

Please let me know what else you need to complete review of this pending amendment.

Best Regards,
Leanne Pruett

NOTE – the CSF's are currently incorrect, as they have [REDACTED] listed as the source of active. Do you want me to submit updated CSF's to you for the files, as a part of this amendment, or can they be submitted at a later date?

From: Kumar, Rita [mailto:Kumar.Rita@epa.gov]
Sent: Friday, June 13, 2014 11:33 AM
To: Leanne Pruett
Cc: Urbanski, Jennifer
Subject: Pending fast track application for Cavalier 2L (89799-1)

Dear Leanne: I am reviewing this application and need clarification from you regarding the following:

[REDACTED]

Please respond ASAP with either a revised Formulator's Exemption form or a data matrix for the generic data.

Regards,
Rita



United States
Environmental Protection Agency
Washington, DC 20460
Formulator's Exemption Statement
(40 CFR 152.85)

Applicant's Name and Address

Raymat Crop Science, Inc.
440 Boulder Ct., Suite 300
Pleasanton, CA 94566

EPA File Symbol/Registration Number
89799 - 1

Product Name
Cavalier 2L

Date of Confidential Statement of Formula (EPA Form 8570-4)
March 30, 2013 and July 26, 2013

As an authorized representative of the applicant for registration of the product identified above, I certify that:

(1) This product contains the following active ingredient(s):

Diflubenzuron

(2) Of these, each active ingredient listed in paragraph (4) is present solely as the result of the use of that active ingredient in the manufacturing, formulation or repackaging another product which contains that active ingredient which is registered under FIFRA Section 3, is purchased by us from another person and meets the requirements of 40 CFR section 158.50(e)(2) or (3).

(3) Indicate by checking (A) or (B) below which paragraph applies:

☒ (A) An accurate Confidential Statement of Formula (EPA FORM 8570-4) for the above identified product is attached to this statement. That formula statement indicates, by company name, registration number, and product name, the source of the active ingredient(s) listed in paragraph (1).

OR

☐ (B) The Confidential Statement of Formula (CSF)(EPA Form 8570-4) referenced above and on file with the EPA is complete, current, an accurate and contains the information required on the current CSF.

(4) The following active ingredients in this product qualify for the formulator's exemption.

Source

Active Ingredient	Product Name	Registration Number
Diflubenzuron	[REDACTED]	[REDACTED]
Signature 	Name and Title P. Leanne Pruett, Authorized Agent	Date June 13, 2014

EPA Form 8570-27 (Rev. 06-2004)

Copy 1 - EPA
Copy 2 - Applicant copy



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

March 28, 2014

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

JANELLE KAY
PYXIS REGULATORY CONSULTING, INC
RAYMAT CROP SCIENCE, INC
4110 136TH ST. NW
GIG HARBOR, WA 98332-

PRODUCT NAME: CAVALIER 2L
COMPANY NAME: RAYMAT CROP SCIENCE, INC
OPP IDENTIFICATION NUMBER:
EPA FILE SYMBOL: 89799-1
EPA RECEIPT DATE: 03/26/14

SUBJECT: RECEIPT OF AMENDMENT

DEAR REGISTRANT:

The Office of Pesticide Programs has received your application for an amendment and it has passed an administrative screen for completeness.

During the initial screen we determined that the application appears to qualify for fast track review. The package will now be forwarded to the Product Manager for review to determine its acceptability for fast track status.

If you have any questions, please contact Registration Division, Risk Management Team 7, at (703) 305-7356.

Sincerely,

A handwritten signature in black ink, appearing to be "S. J. L." or similar, written over a horizontal line.

Front End Processing Staff
Information Services Branch
Information Technology & Resources Management Division

③

Fee for Service

{949692Q~

This package includes the following

for Division

- ☐ New Registration
- ☒ Amendment

- ☐ AD
- ☐ BPPD
- ☒ RD

☐ Studies? ☐ Fee Waiver?

Risk Mgr. 7

☐ volpay % Reduction: _____

Receipt No.

S- 949692

EPA File Symbol/Reg. No.

89799-1

Pin-Punch Date:

2/26/2014

☒ This item is NOT subject to FFS action.

Action Code:

Parent/Child Decisions:

Requested:

/

Granted:

/

Amount Due: \$ _____

☐ Inert Cleared for Intended Use

☐ Uncleared Inert in Product

Reviewer: RBa

Date: 3/27/14

Remarks: If this requires science review. Send to recode



United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☒ Amendment
☐ Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number Raymat Crop Science Inc. / 89799 - 1	2. EPA Product Manager Reuben Barris	3. Proposed Classification <input type="checkbox"/> None <input checked="" type="checkbox"/> Restricted
4. Company/Product (Name) Raymat Crop Science, Inc. / Cavalier 2L	PM# 7	
5. Name and Address of Applicant (Include ZIP Code) Raymat Crop Science, Inc. c/o Pyxis Regulatory Consulting, Inc. 4110 136th St., NW Gig Harbor, WA 98332 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. 400 - 461 Product Name Dimilin 2L	

Section - II

<input checked="" type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Submission of amended label to add citrus crop group 10 uses. As no data are being submitted with this amendment, nor will data need to be reviewed to approve the proposed labeling, Raymat Crop Science, Inc. believes this action is not subject to a Pesticide Registration Service Fee.

Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Metal	
				<input type="checkbox"/> Plastic	
				<input type="checkbox"/> Glass	
				<input type="checkbox"/> Paper	
				<input type="checkbox"/> Other (Specify)	
* Certification must be submitted		If "Yes" Unit Packaging wgt. 1 gallon	No. per container 4	If "Yes" Package wgt.	No. per container
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container 1 gal., 4 x 1 gal., 2.5 gal.-55 gal., bulk		5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product	
6. Manner in Which Label is Affixed to Product <input checked="" type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled				<input type="checkbox"/> Other _____	

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name P. Leanne Pruett	Title Agent	Telephone No. (Include Area Code) 253-853-7369
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received (Stamped)
2. Signature 	3. Title Agent	
4. Typed Name P. Leanne Pruett	5. Date March 24, 2014	

PYXIS REGULATORY CONSULTING, INC.

4110 136th St. NW
Gig Harbor, WA 98332

Phone: 253-853-7369
Fax: 253-853-5516
www.PyxisRC.com

March 24, 2014

^e
Reubin Baris (PM7)
Document Processing Desk (AMEND)
Office of Pesticide Programs (7504P)
U.S. Environmental Protection Agency
Room S-4900, One Potomac Yard
2777 S. Crystal Drive
Arlington, VA 22202-4501

RE: Raymat Crop Science, Inc. – Cavalier 2L (EPA Reg. No. 89799-1)
Label Amendment – addition of label language for citrus crop group 10

Dear Mr. Baris,

On behalf of Rayat Crop Science, Inc. I am submitting an application to amend the registration of Cavalier 2L (EPA Reg. No. 89799-1), to modify uses for oranges, grapefruit, tangerine and pummelo to allow use on all crops contained in citrus crop group 10. This same label language is included in a supplemental label, attached to the end of the Sec. 3 product label. Additionally, the product label has been updated to bring it more in line with current EPA label requirements.

In support of this label amendment, the following documents are enclosed:

1. EPA Application Form 8570-1
2. One (1) copy of SAUSX-01 label with changes tracked
3. Three (3) copies of SAUSX-01 label with changes incorporated
4. One copy of the proposed label on CD
5. Certification with respect to Label Integrity
6. EPA Form 8570-27 Formulator's Exemption
7. EPA Form 8570-34 (Certification with respect to Citation of Data)
8. EPA Form 8570-35 – Data Matrix – Agency Internal Copy and Public File Copy
9. Letter of Authorization

Because no data are being submitted with this amendment and no data will need to be reviewed to approve the proposed labeling, Raymat believes this action is not subject to a Pesticide Registration Service Fee. If you have any questions or concerns regarding this application for registration, or require additional information, please contact me at (253) 853-7369 or Leanne@PyxisRC.com.

Best Regards,



P. Leanne Pruett
Pyxis Regulatory Consulting

Enclosures

cc: Raymat Crop Science, Inc.



United States
Environmental Protection Agency
 Washington, DC 20460
Formulator's Exemption Statement
 (40 CFR 152.85)

Applicant's Name and Address

Raymat Crop Science, Inc.
 440 Boulder Ct., Suite 300
 Pleasanton, CA 94566

EPA File Symbol/Registration Number
 89799 - 1

Product Name
 Cavalier 2L

Date of Confidential Statement of Formula (EPA Form 8570-4)
 March 30, 2013 and July 26, 2013

As an authorized representative of the applicant for registration of the product identified above, I certify that:

(1) This product contains the following active ingredient(s):

Diflubenzuron

(2) Of these, each active ingredient listed in paragraph (4) is present solely as the result of the use of that active ingredient in the manufacturing, formulation or repackaging another product which contains that active ingredient which is registered under FIFRA Section 3, is purchased by us from another person and meets the requirements of 40 CFR section 158.50(e)(2) or (3).

(3) Indicate by checking (A) or (B) below which paragraph applies:

☐ (A) An accurate Confidential Statement of Formula (EPA FORM 8570-4) for the above identified product is attached to this statement. That formula statement indicates, by company name, registration number, and product name, the source of the active ingredient(s) listed in paragraph (1).

OR

☒ (B) The Confidential Statement of Formula (CSF)(EPA Form 8570-4) referenced above and on file with the EPA is complete, current, an accurate and contains the information required on the current CSF.

(4) The following active ingredients in this product qualify for the formulator's exemption.

Source

Active Ingredient	Product Name	Registration Number
Diflubenzuron	[REDACTED]	[REDACTED]
Signature 	Name and Title P. Leanne Pruett, Authorized Agent	Date March 24, 2014

EPA Form 8570-27 (Rev. 06-2004)

Copy 1 - EPA
 Copy 2 - Applicant copy

Product ingredient source information may be entitled to confidential treatment



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
401 M Street, S.W.
WASHINGTON, D.C. 20460

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Certification with Respect to Citation of Data

Applicant's/Registrant's Name, Address, and Telephone Number Raymat Crop Science, Inc. 440 Boulder Ct., Suite 300, Pleasanton, CA 94566; (510) 579-7685	EPA Registration Number/File Symbol 89799 - 1
Active Ingredient(s) and/or representative test compound(s) Diflubenzuron	Date March 24, 2014
General Use Pattern(s) (list all those claimed for this product using 40 CFR Part 158) Terrestrial food and feed; Terrestrial non-food	Product Name Cavalier 2L

NOTE: If your product is a 100% repackaging of another purchased EPA-registered product labeled for all the same uses on your label, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

☐ I am responding to a Data-Call-In Notice, and have included with this form a list of companies sent offers of compensation (the Data Matrix form should be used for this purpose)

SECTION I: METHOD OF DATA SUPPORT (Check one method only)

<input type="checkbox"/> I am using the cite-all method of support, and have included with this form a list of companies sent offers of compensation (the Data Matrix form should be used for this purpose).	<input checked="" type="checkbox"/> I am using the selective method of support (or cite-all option under the selective method), and have included with this form a completed list of data requirements (the Data Matrix form must be used).
--	---

SECTION II: GENERAL OFFER TO PAY

[Required if using the cite-all method or when using the cite-all option under the selective method to satisfy one or more data requirements]

☐ I hereby offer and agree to pay compensation, to other persons, with regard to the approval of this application, to the extent required by FIFRA.

SECTION III: CERTIFICATION

I certify that this application for registration, this form for reregistration, or this Data-Call-In response is supported by all data submitted or cited in the application for registration, the form for reregistration, or the Data-Call-In response. In addition, if the cite-all option or cite-all option under the selective method is indicated in Section I, this application is supported by all data in the Agency's files that (1) concern the properties or effects of this product or an identical or substantially similar product, or one or more of the ingredients in this product; and (2) is a type of data that would be required to be submitted under the data requirements in effect on the date of approval of this application if the application sought the initial registration of a product of identical or similar composition and uses.

I certify that for each exclusive use study cited in support of this registration or reregistration, that I am the original data submitter or that I have obtained the written permission of the original data submitter to cite that study.

I certify that for each study cited in support of this registration or reregistration that is not an exclusive use study, either: (a) I am the original data submitter; (b) I have obtained the permission of the original data submitter to use the study in support of this application; (c) all periods of eligibility for compensation have expired for the study; (d) the study is in the public literature; or (e) I have notified in writing the company that submitted the study and have offered (i) to pay compensation to the extent required by sections 3(c)(1)(F) and/or 3(c)(2)(B) of FIFRA; and (ii) to commence negotiations to determine the amount and terms of compensation, if any, to be paid for the use of the study.

I certify that in all instances where an offer of compensation is required, copies of all offers to pay compensation and evidence of their delivery in accordance with sections 3(c)(1)(F) and/or 3(c)(2)(B) of FIFRA are available and will be submitted to the Agency upon request. Should I fail to produce such evidence to the Agency upon request, I understand that the Agency may initiate action to deny, cancel or suspend the registration of my product in conformity with FIFRA.

I certify that the statements I have made on this form and all attachments to it are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

Signature

P. Leanne Pruett

Date

3/24/2014

Typed or Printed Name and Title

P. Leanne Pruett, Agent

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
401 M Street, S.W.
WASHINGTON, D.C. 20460

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DATA MATRIX

Date: March 24, 2014		EPA Reg. No./File Symbol: 89799-1		Page 1 of 3	
Applicant's/Registrant's Name & Address: Raymat Crop Science, Inc. 440 Boulder Ct., Suite 300, Pleasanton CA 94566		Product: Cavalier 2L			
Ingredient: Diflubenzuron (CAS No. 35367-38-5)					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
SERIES 61	PRODUCT CHEMISTRY REPORT				
830.1550	Product Identity and Composition	49102901	Raymat Crop Science, Inc.	OWN	
830.1600	Description of Materials used to produce product	49102901	Raymat Crop Science, Inc.	OWN	
830.1620	Description of Production Process				Not Required ¹
830.1650	Description of Formulation Process	49102901	Raymat Crop Science, Inc.	OWN	
830.1670	Discussion of Formation of Impurities	49102901	Raymat Crop Science, Inc.	OWN	
830.1700	Preliminary Analysis				Not Required ²
830.1750	Certified Limits	49102901	Raymat Crop Science, Inc.	OWN	
830.1800	Enforcement Analytical Method	49102901	Raymat Crop Science, Inc.	OWN	
SERIES 63	PHYSICAL-CHEMICAL CONSTANTS				
830.6302	Color	49102902	Raymat Crop Science, Inc.	OWN	
830.6303	Physical State	49102902	Raymat Crop Science, Inc.	OWN	
830.6304	Odor	49102902	Raymat Crop Science, Inc.	OWN	
830.6313	Stability to Normal, Elevated T's, Metals, Metal Ions				Not Required ³
Signature		Name and Title: P. Leanne Pruett, Regulatory Consultant		Date: 3-24-2014	

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Form Approved OMB No. 2070-0060

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Ingredient: Diflubenzuron (CAS No. 35367-38-5)				
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status
SERIES 61	PHYSICAL-CHEMICAL CONSTANTS (continued)			
830.6314	Oxidation / Reduction: chemical incompatibility	49102902	Raymat Crop Science, Inc.	OWN
830.6315	Flammability	49102902	Raymat Crop Science, Inc.	OWN
830.6316	Explosibility			Waiver ²
830.6317	Storage Stability	49208701	Raymat Crop Science, Inc.	OWN
830.6319	Miscibility			Waiver ³
830.6320	Corrosion Characteristics	49208701	Raymat Crop Science, Inc.	OWN
830.6321	Dielectric Breakdown Voltage			Waiver ³
830.7000	pH	49102902	Raymat Crop Science, Inc.	OWN
830.7050	UV / Visible Absorption			Not Required ³
830.7100	Viscosity	49102902	Raymat Crop Science, Inc.	OWN
830.7200	Melting Point / Melting Range			Not Required ³
830.7220	Boiling Point / Boiling Range			Not Required ³
830.7300	Density / Relative Density / Bulk Density	49102902	Raymat Crop Science, Inc.	OWN
830.7370	Dissociation Constant			Not Required ³
Signature		Name and Title: P. Leanne Pruett, Regulatory Consultant		Date: 3-24-2014

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Ingredient: Diflubenzuron (CAS No. 35367-38-5)		

Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
SERIES 61	PHYSICAL-CHEMICAL CONSTANTS (continued)				
830.7520	Particle Size, Fiber Length, diameter distribution				Waiver
830.7550, .7560, .7570	N-octanol/water Partition Coefficient				Not Required ³
830.7840, .7860	Water Solubility				Not Required ³
830.7950	Vapor Pressure				Not Required ³
SERIES 870	ACUTE TOXICITY				
870.1100	Acute Oral Toxicity	44574504	Chemtura Corporation	OLD	
870.1200	Acute Dermal Toxicity	44574505	Chemtura Corporation	OLD	
870.1300	Acute Inhalation Toxicity	44574506	Chemtura Corporation	OLD	
870.2400	Acute Eye Irritation	44574507	Chemtura Corporation	OLD	
870.2500	Acute Dermal Irritation	44574508	Chemtura Corporation	OLD	
870.2600	Skin Sensitization	44574509	Chemtura Corporation	OLD	
Signature			Name and Title: P. Leanne Pruett, Regulatory Consultant		Date: 3-24-2014

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Endnotes for Cavalier 2L Data Matrix
March 24, 2014

¹830.1620 - Per OPPTS 830.1000, these data are not required for the registration of an end-use product. See 830.160 for formulation process information

²830.1700 – This product does not consist solely of the technical grade active ingredient (TGAI), and is not produced by an integrated system, therefore, per OPPTS 830.1700, these data are not required

³830.6313, 830.7050, 830.7200, 830.7220, 830.7370, 830.7550, 830.7560, 830.7570, 830.7840, 830.7860, 830.7950 – These data are not required for registration of an end use product.

⁴830.6316 – Cavalier 2L does not have the chemical bonds or functional groups associated with explosive chemicals, therefore this data is not required. Please refer to the Confidential Statement of Formula for additional information on the composition of Cavalier 2L

⁵830.6319 – Cavalier 2L is not an emulsifiable concentrate to be diluted with any solvent (including petroleum solvents); therefore, miscibility data is not applicable.

⁶830.6321 – Cavalier 2L is not proposed for use around electrical equipment. Therefore this data is not applicable.

⁷830.7520 – Cavalier 2L is not water insoluble, and is not a fibrous material, therefore these data are not applicable.

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Ingredient: Diflubenzuron (CAS No. 35367-38-5)					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
			Raymat Crop Science, Inc.	OWN	
			Raymat Crop Science, Inc.	OWN	
					Not Required ¹
			Raymat Crop Science, Inc.	OWN	
			Raymat Crop Science, Inc.	OWN	
					Not Required ²
			Raymat Crop Science, Inc.	OWN	
			Raymat Crop Science, Inc.	OWN	
			Raymat Crop Science, Inc.	OWN	
			Raymat Crop Science, Inc.	OWN	
			Raymat Crop Science, Inc.	OWN	
					Not Required ³
Signature		Name and Title: P. Leanne Pruett, Regulatory Consultant		Date: 3-24-2014	

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Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status
			Raymat Crop Science, Inc.	OWN
			Raymat Crop Science, Inc.	
				Waiver ⁴
				Waiver ⁵
				Waiver ⁶
			Raymat Crop Science, Inc.	OWN
				Not Required ³
			Raymat Crop Science, Inc.	OWN
				Not Required ³
				Not Required ³
			Raymat Crop Science, Inc.	OWN
				Not Required ³
Signature		Name and Title: P. Leanne Pruett, Regulatory Consultant		Date: 3-24-2014

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Ingredient: Diflubenzuron (CAS No. 35367-38-5)					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
					Waiver ¹
					Not Required ³
					Not Required ³
					Not Required ³
			Chemtura Corporation	OLD	
			Chemtura Corporation	OLD	
			Chemtura Corporation	OLD	
			Chemtura Corporation	OLD	
			Chemtura Corporation	OLD	
			Chemtura Corporation	OLD	
Signature		Name and Title: P. Leanne Pruett, Regulatory Consultant		Date: 3-24-2014	

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Raymat Crop Science, Inc.

440 Boulder CT., Suite 300, Pleasanton, CA 94566 USA
Tel. 510-579-7685, Fax. 925-249-9989

Dec. 3, 2012

To Whom It May Concern:

RE: Letter of Authorization

Dear Sir or Madam:

Please let this letter serve to confirm that Pyxis Regulatory Consulting, Inc. is authorized to act as agents for Raymat Crop Science, Inc. (EPA company number pending), before the U.S. Environmental Protection Agency and state governmental agencies in all matters regarding our pesticide registrations pursuant to the Federal Insecticide, Fungicide and Rodenticide Act ("FIFRA"), 7 U.S.C. § 136 et seq. and state law.

If you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jibing Lin', with a horizontal line drawn underneath.

Jibing Lin, Ph. D, President
Raymat Crop Science, Inc.

cc: Pyxis Regulatory Consulting, Inc.

Certification with Respect to Label Integrity

version: 9/11/02

I certify that the information (including, but not limited to, text, tables, and graphics) contained in the electronic file identified below by file name and submitted with this certification is the same information as that on the paper copies of these documents included with this submission.

PROPOSED LABEL		
EPA Registration #	Date Submitted to EPA	Electronic file name
89799-1	March 24, 2014	089799-00001.20140324.Cavalier 2L_lblamd add citrus cg 10-10.PDF

I certify that the statements that I have made on this form are true, accurate, and complete. I acknowledge that any knowingly false or misleading statements may be punishable by fine or imprisonment or both under applicable law.



Signature

March 24, 2014

Date

P. Leanne Pruett

Name (typed)

Agent

Title

Material Sent for Data Extraction

Reg. # 89799-1

Description: _____

☐ Material(s) Sent to Data Extraction Contractors:

☒ New Stamped Label Dated 4/23/14

☐ Notification Dated _____

☐ New CSF(s) Dated _____

☐ Other: _____

☐ Decision #: _____

☐ Other Action/Comments: _____

File this coversheet and attached materials in the jacket. It must be well organized and clipped together, NOT STAPLED. Then give the jacket with the coversheet and materials to staff in the Information Services Center (ISC) (Room S-4900). If a jacket is full or only available as an image, please file materials in a new jacket and bring it down to the (ISC). For further information please call 703-605-0716.

Reviewer: Autumn Metzger

Phone: 305-5314 Division: RD - IRB

Date: 5/1/14



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

APR 23 2014

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Mr. Michael Kellogg
Pyxis Regulatory Consulting, Inc.
4110 136th St. NW
Gig Harbor, WA 98332

Authorized agent for Raymat Crop Science, Inc.

Dear Mr. Kellogg:

Subject: Fast track label amendment – minor label changes for registration in FL
Cavalier 2L
EPA File Symbol 89799-1
Your submission dated March 5, 2014
OPP Decision Number D488257

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable.

A stamped copy of the label is enclosed for your records. Submit two (2) copies of the final printed label before you release the product for shipment bearing the revised labeling. If you have any questions, please contact Rita Kumar at (703) 308-8291, or kumar.rita@epa.gov.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Meredith Laws".

Meredith Laws, Chief
Insecticide-Rodenticide Branch
Registration Division (7505P)

Enclosure

RESTRICTED USE PESTICIDE

Due to toxicity to aquatic invertebrate animals. For retail sale to and use only by Certified Applicators, or persons under their direct supervision, and only for those uses covered by the Certified Applicator's certification.

CAVALIER 2L

Insect Growth Regulator

Aqueous Flowable

For use on **field and row crops** (artichoke, barley, oats, triticale and wheat; cotton; leafy brassica and turnip greens; peanut; pepper; rice; soybean; turfgrass), **orchard crops** (oranges, grapefruit, tangerine and pummelo; pear; stonefruit (excluding cherries); tree nuts) and **non-crop uses** (livestock and poultry premises; grassland; non-crop areas)

ACTIVE INGREDIENT:

Diflubenzuron: [((4-Chlorophenyl)amino)carbonyl]-2,6-difluorobenzamide*22.0%

OTHER INGREDIENTS:78.0%

TOTAL:100.0%

*Contains 2 lbs. diflubenzuron per gallon

KEEP OUT OF REACH OF CHILDREN CAUTION

FIRST AID	
IF SWALLOWED:	<ul style="list-style-type: none">• Call a poison control center or doctor immediately for treatment advice.• Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor.• Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none">• Take off contaminated clothing.• Rinse skin immediately with plenty of water for 15-20 minutes.• Call a poison control center or doctor for treatment advice.
IF INHALED:	<ul style="list-style-type: none">• Move person to fresh air.• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.• Call a poison control center or doctor for further treatment advice.
IF IN EYES:	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15-20 minutes.• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.• Call a poison control center or doctor for treatment advice.
HOT LINE NUMBER	
Have the Cavalier 2L container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact Chemtrec at 1-800-424-9300 for emergency medical information.	

EPA Reg. No. 89799-1

EPA Est. No. XXXXX-XX-X

Manufactured for:

Raymat Crop Science, Inc.
440 Boulder Court, Suite 300
Pleasanton, CA 94566

Net Contents: _____ Gallon(s)

ACCEPTED

APR 23 2014

Under the Federal Insecticide, Fungicide,
and Rodenticide Act, as amended, for the
pesticide registered under:

EPA. Reg. No: 89799-1

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS CAUTION

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for Category A on an EPA chemical-resistant selection chart.

Applicators and Other Handlers Must Wear: A long-sleeved shirt & long pants; chemical-resistant gloves, such as barrier laminate, nitrile rubber, neoprene rubber, natural rubber, polyethylene, PVC, or viton, when mixing and loading and also when using hand-held equipment; shoes plus socks.

Mixers and Loaders Using Fixed-Wing Aircraft Must Wear: A long-sleeved shirt and long pants; chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, PVC or viton; shoes plus socks; dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C or a NIOSH approved respirator with any R, P or HE filter).

Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems (including water soluble bags), enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of glove before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to terrestrial juvenile insects and aquatic invertebrates/mollusks/insects. Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

DIRECTIONS FOR USE RESTRICTED USE PESTICIDE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- coveralls
- chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride
- shoes plus socks

INSTRUCTIONS AND INFORMATION

RUNOFF

Cavalier 2L has a potential for runoff, which can occur up to several months after use. Runoff containing this product is more likely to occur in soils that have shallow water tables or are poorly draining.

The following will decrease the likelihood of contaminating water from runoff:

- a well maintained, level vegetative buffer strip situated between application areas and surface water features (i.e., ponds, springs, streams)
- application of product avoided if forecasts predict rainfall within 48 hours
- practices that foster sound erosion control

SPRAY DRIFT LABELING

This product may contaminate water through drift or spray in wind. Avoiding spray drift at the application site is the responsibility of the applicator.

The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator is responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to ULV applications on grassland and non-crop areas, for the control of grasshoppers and Mormon crickets.

1. The distance of the outermost nozzles on the boom must not exceed $\frac{3}{4}$ the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.
3. Observe the regulations of the State where applications are made.
4. Applicators must observe and abide by the requirements of the Aerial Drift Reduction Advisory.

Information on Droplet Size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

Controlling Droplet Size

Volume – Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.

Pressure – Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use high flow rate nozzles instead of increasing the pressure.

Number of nozzles – Use the minimum number of nozzles that provide uniform coverage.

Nozzle Orientation – Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from the horizontal will reduce droplet size and increase drift potential.

Nozzle Type – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Boom Length - For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

Application Height - Applications should not be made at a height greater than 10 feet above the largest plants unless a greater height is required for aircraft safety. Making applications at the lower height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment - When applications are made with a cross-wind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for the displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

Wind - Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect drift.

Temperature and Humidity - When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are hot and dry.

Temperature Inversions - Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upwards and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas - The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

INFORMATION

Cavalier 2L is an insect growth regulator, whose unique mode of action disrupts the regular molting process of insect larvae. It is effective against Lepidoptera and Diptera species and a wide variety of other insect pests, and performs well when used in IPM programs.

RESTRICTIONS

- Cavalier 2L cannot be applied to water bodies where swimming is expected
- For Field Crops, Row Crops, Orchard Uses, Grassland, Non-crop Areas: Do not apply within 25 feet by ground or 150 feet by air of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries. All applications must include a 25 foot vegetative buffer strip within the buffer zone to decrease runoff.
- ROTATIONAL CROPS: Unless diflubenzuron is registered for use on a particular crop wait one month after last application to plant food or feed crops in soils treated with Cavalier 2L.
- Due to distinctive mode of action, insects could take several days following application to show visible effects of Cavalier 2L.
- Do not apply via chemigation in the State of California.

APPLICATION INSTRUCTIONS

Mixing Directions – with water

- Fill a clean spray tank with half of the water required for treatment
- Begin agitation and add appropriate amount of Cavalier 2L to spray tank
- Add second half of water while maintaining agitation
- If adding oil, pour the appropriate amount slowly into the mixing tank. Making sure to use at least 2 parts of water to one part of oil will help avoid development of an invert emulsion

Mixing Directions – without water

Premix Cavalier 2L and other ingredients in a nurse tank before transferring into appropriate application equipment

-or-

- Fill a clean tank with appropriate amount of oil or oil-based insecticide
- Begin agitation and add appropriate amount of Cavalier 2L to spray tank
- Thoroughly mix contents of spray tank
- Drain a volume of carrier adequate to fill booms and piping system from the contents of the tank and then add back to tank

Compatibility – when combining Cavalier 2L with other pesticides, additives or adjuvants, test for compatibility and sprayability. In a lidded glass jar (~1 quart size), add all mix partners, in their relative proportions. Invert, shake or mix the jar thoroughly. Observe mixture for approximately 30 minutes (though signs of incompatibility will often be seen within 5 minutes). Read and follow the label of each tank mix Cavalier 2L used for precautionary statements, directions for use, rates and timings, and other restrictions.

Application – aerial or ground

Spray should be applied with equipment that gives uniform and complete coverage of the whole plant / crop surface. Equipment should be calibrated to deliver droplets of 150 to 220 microns in diameter. Continue constant agitation while mixing and applying Cavalier 2L.

Application – Chemigation*

*DO NOT APPLY VIA CHEMIGATION IN THE STATE OF CALIFORNIA

Cavalier 2L can be applied by chemigation in grassland and row crops. System should be properly equipped for insect control. Cavalier 2L can be applied only through sprinkler irrigation systems (center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move). Cavalier 2L cannot be applied through any other type of irrigation system. If treated water is not uniformly distributed, crop injury, illegal pesticide residues or lack of efficacy could occur.

In order to calibrate the irrigation system and injector to apply the mixture:

- Determine how many acres are irrigated by the chemigation system
- Once the irrigation rate has been set, determine how long (minutes) the system takes to cover the intended treatment area
- Determine the amount of mixture (total gallons) necessary to cover the desired acreage.
- Determine injector's gallon per minute rate by dividing amount of mixture (gallons) needed by time (minutes) to cover intended treatment area.
- Determine the correct ounces per minute rate (converting from gallons per minute)
- Operate system at desired irrigation rate and calibrate injector

It is suggested that the injector pump be calibrated at least twice before operation and the system be monitored during operation.

Your local extension service, university experts or equipment manufacturers or representatives can answer questions regarding calibration.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person shall shut the system down and make necessary adjustments should the need arise.

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

If the chemigation system is connected to a public water supply, the following conditions must also be met:

- 'Public water system' means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
- Chemigation systems connected to public water systems must contain a functional reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from a point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
- The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.
- Upon completion of insecticide application, remove scale, pesticide residues, and other foreign matter from the supply tank and entire injector system. Flush thoroughly with clean water.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

SPRINKLER CHEMIGATION

For continuously moving systems, the mixture containing Cavalier 2L must be injected continuously and uniformly into the irrigation water line as the sprinkler is moving. If continuously moving irrigation equipment is used, apply in no more than 0.25 inch of water. For sprinkler systems that do not move during operation, apply in no more than 0.25 inch of irrigation immediately before the end of the irrigation cycle.

Maintain continuous agitation of the pesticide supply tank for the duration of the application period.

To apply a pesticide using sprinkler chemigation, the chemigation system must meet the following specifications:

- The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch, which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

RESISTANCE MANAGEMENT

Cavalier 2L controls several economically important insect pests, and also provides a margin of safety to pollinators and beneficial insects when used as directed. Cavalier 2L is an effective addition to IPM programs which follow good management practices including:

- Scout regularly to determine new insect pressure and apply Cavalier 2L against larval and immature insect stages for optimum results
- Carefully follow all label directions, including application timing and rate
- Use chemical alternatives (such as oil)
- As part of an IPM program, protect beneficial arthropods
- Use sufficient water volume to obtain good coverage of foliage
- Alternate different insecticides with varying modes of action

SPECIFIC USE DIRECTIONS FIELD AND ROW CROPS

ARTICHOKE (California only)

Application Instructions

Cavalier 2L can be applied aerially in 10 to 20 gallons (total volume) per acre, or by ground application in 50 to 250 gallons (total volume) per acre. Make sure that application volume is sufficient for adequate coverage.

Application Rates

Artichoke Plume Moth: apply 8-16 fl. oz. per acre

Optimum results are obtained when Cavalier 2L is applied when first moths are caught in pheromone traps, or when moth flights start.

IMPORTANT

- For use only in California
- Cavalier 2L can be a part of an IPM program to manage target pest populations (in combination with cultural practices, target insect population early detection, threshold treatment levels, etc.). University or local extension representatives can give recommendations regarding IPM practices
- Maximum number of applications is 3 in any 30 day period
- Application interval is a minimum of 15 days
- Pre-harvest interval is 1 day before harvest

BARLEY, OATS, TRITICALE, & WHEAT

Application Instructions

Cavalier 2L can be applied aerially in 2 to 5 gallons (total volume) per acre, or by ground application in 5 to 15 gallons (total volume) per acre. Make sure that application volume is sufficient for adequate coverage.

Application Rates

Grasshoppers: apply 1 – 2 fl. oz. per acre

Optimum results are obtained when application is made to infesting grasshoppers that have reached the 2nd and 3rd nymphal stage of development. Adult grasshoppers will not be effectively controlled by Cavalier 2L.

Cereal Leaf Beetle: apply 4 fl. oz. per acre

Make application when egg laying begins to occur, for optimum results. If infestation advances into later instar larvae, do not apply Cavalier 2L.

IMPORTANT

- If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper population soon enough to minimize extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.
- Larvae and nymphs could take up to 5 to 7 days following application to show visible effects, due to the distinctive mode of action of Cavalier 2L.
- For use only in: Alaska; Colorado; Idaho; Montana; Nebraska, Western (West of Route 281); North Dakota, Western (West of Route 281); Oregon; South Dakota, Western (West of Route 281); Utah, Washington, Wyoming
- Maximum number of application is 1 per season
- Maximum amount of Cavalier 2L per acre is 4 fl. oz. per season
- Make application only up until the boot stage of growth
- Pre-harvest interval for forage is 3 days; Pre-harvest interval for hay is 15 days; Pre-harvest interval for grain and straw is 50 days.

COTTON

Application Instructions

Cavalier 2L may be applied aerially in 3 to 5 gallons (total volume) per acre, or by ground application in 10 to 20 gallons (total volume) per acre. Cavalier 2L can also be applied via ULV application in 20 to 48 fl. oz. total volume per acre aerially, or by ground application in 20 to 64 fl. oz. total volume per acre. Make sure the application volume is sufficient for adequate coverage.

Adjuvants

- If Cavalier 2L is being applied under conditions of high air temperature and/or low humidity, or other conditions that encourage water evaporation, 1 to 2 qts. oil is to be used with Cavalier 2L for control of larvae / nymphs
- For a low volume application (ground or aerial), the use of 1 pt. to 2 qts. of an emulsified vegetable or paraffinic crop oil can reduce evaporation of spray droplets (and subsequent drift), and can enhance canopy penetration
- When Cavalier 2L is being applied via ULV, 20 fl. oz. (minimum) of an emulsified cottonseed, vegetable or petroleum based oil carrier is to be used (if cottonseed oil used is non-emulsified, a compatibility agent may be necessary for thorough blending)

For oil specifications, check with your Raymat representative or supplier.

Application Rates

Beet Armyworm (early season before first bloom): Apply 2-4 fl. oz. per acre

For acceptable beet armyworm control in young cotton, apply Cavalier 2L when observing 2 beet armyworm egg masses or hatchouts per 100 feet of row, or other sign of beet armyworm activity. Make multiple directed or broadcast applications until 8 fl. oz. Cavalier 2L have been applied per acre, at application intervals of 5 to 7 days. Multiple applications more completely cover rapidly growing cotton plants, and Cavalier 2L's persistence can help prevent later buildup of beet armyworm populations.

Beet Armyworm (mid-season): apply 4-8 fl. oz. per acre

Make multiple applications at 5 to 7 day intervals, until 8 fl. oz. Cavalier 2L per acre have been applied. Start application around first bloom, up through mid-bloom. For more extreme larval pressure, or for large cotton, use higher listed application rate. Make first application when a new generation of larvae is about to hatch (determined by peak beet armyworm moth catches in pheromone traps). For optimum control, treat cotton leaves during early stages of larval development, before populations become established.

Beet Armyworm (late season): apply 6-8 fl. oz. Cavalier 2L per acre

Apply when peak beet armyworm moth catches are observed in pheromone traps, after mid-bloom, but at least 14 days prior to harvest. For more extreme larval pressure, or for larger cotton, use higher listed application rate.

For control of **Fall Armyworm, Yellowstriped Armyworm, Southern Armyworm** and suppression of **Soybean Looper, Cabbage Looper, Saltmarsh Caterpillar**: apply 4 -8 fl. oz. per acre.

Make applications during a 5 to 7 day interval, in early larval development stages, until at least 8 fl. oz. Cavalier 2L per acre have been applied.

Boll Weevil (early season, before first bloom): apply 4-8 fl. oz. per acre

For optimum boll weevil control, apply initially at pinhead square stage of cotton growth. Wait 7 days before repeat application. For ULV application use the lower (4 fl. oz. per acre) rate.

Adjuvants: Use 2 to 4 quarts paraffinic crop oil, emulsified cottonseed oil or vegetable oil. Or if making a ULV application, use a minimum of 8 fl. oz. of vegetable or petroleum based oil carrier, oil-based insecticide or emulsified cottonseed oil (if cottonseed oil used is non-emulsified, a compatibility agent may be necessary for thorough blending). For oil specifications, check with your Raymat representative or supplier.

Cavalier 2L does not kill adult boll weevil, but controls populations by suppressing reproduction – eggs deposited by affected female weevils will not hatch. Seven to 10 days after initial treatment of female, non-hatching eggs are laid, and will continue to be laid for approximately 10 days, or longer if female boll weevil is exposed to additional applications of Cavalier 2L. Control of egg hatch and larval development within the pinhead square keeps it from shedding, and results in normal boll development. Multiple treatments and early application will result in best control.

Boll Weevil: apply 2-4 fl. oz. per acre

Apply when adult weevils are going into diapause, when cotton plant has begun blooming out at the top or has reached full vegetative growth. The number of weevils that appear in the spring is reduced when applications are made to adult weevils going into diapause to overwinter.

Make 2 to 3 (maximum) applications, at 7 to 14 day intervals.

Adjuvants: Use 2 to 4 quarts paraffinic crop oil, emulsified cottonseed oil or vegetable oil with a low volume application spray. Or if making a ULV application, use a minimum of 8 fl. oz. of vegetable or petroleum based oil carrier, oil-based insecticide or emulsified cottonseed oil (if cottonseed oil used is non-emulsified, a compatibility agent may be necessary for thorough blending).

Grasshopper: apply 2 fl. oz. per acre

When most infesting grasshoppers have reached the 2nd and 3rd nymphal stage of development, Cavalier 2L should be applied. For effective control, apply before grasshoppers reach the adult stage. If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper population soon enough to minimize extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

IMPORTANT:

- Cavalier 2L can be tank mixed with other cotton insecticides. Be careful when tank mixing Cavalier 2L with emulsifiable concentrate insecticides and oil, as phytotoxicity may result. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.
- Larvae and nymphs could take up to 5 to 7 days following application to show visible effects, due to the distinctive mode of action of Cavalier 2L.
- Maximum number of applications per season is 6
- Maximum amount of Cavalier 2L per acre is 24 fl. oz. per season
- For uses after boll opening, the maximum number of applications is 3, and the maximum amount of product per acre is 12 fl. oz.
- Pre-harvest interval is 14 days

LEAFY BRASSICA GROUP (includes: Broccoli raab, Cabbage, Chinese (bok choy), Collards, Kale, Mizuna, Mustard greens, Mustard spinach, Rape greens) and **TURNIP GREENS**

Application Instructions

Cavalier 2L can be applied via ground application in a minimum of 30 gallons of water per acre. Multiple applications can more effectively cover newly growing foliage. Make sure that application volume is sufficient for adequate coverage.

Application Rate

Grasshopper: apply 2-4 fl. oz. per acre

When most infesting grasshoppers have reached the 2nd and 3rd nymphal stage of development, Cavalier 2L should be applied. Reapply after 7 days if crop reinfestation (nymphal hatch out) continues. For effective control, apply before grasshoppers reach the adult stage. Use higher application rate for greater residual control, around dense foliage, or for areas with historically heavy grasshopper infestations.

IMPORTANT

- Larvae and nymphs could take up to 5 to 7 days following application to show visible effects, due to the distinctive mode of action of Cavalier 2L.
- If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper population soon enough to minimize extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.
- Populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting
- Do not apply to turnip varieties or cultivars with harvestable root
- Maximum number of applications per season is 4
- Maximum amount of product per acre is 16 fl. oz. per season
- Pre-harvest interval is 7 days

PEANUT

Application Instructions

Cavalier 2L can be applied aerially, in 3 to 5 gallons water per acre, or by ground application, in 9 to 35 gallons water per acre. Make sure that application volume is sufficient for uniform coverage.

Adjuvants: See COTTON section.

Application Rate

Velvet Bean Caterpillar, Mexican Bean Beetle, Green Cloverworm: apply 2-4 fl. oz. per acre

Armyworm (such as Beet, Fall, Southern, Yellow-striped), Lesser Cornstalk Borer: apply 4-8 fl. oz. per acre

Soybean Looper suppression: apply 4-8 fl. oz. per acre

For optimum control and minimization of insect damage, apply when larvae are small (less than 1/2 inch). Use higher application rate for greater residual control, around dense foliage, or for areas with historically heavy infestations. Cavalier 2L can be reapplied if necessary, to control reappearance of pests, after an application interval of 14 days.

Grasshopper: apply 2 fl. oz. per acre

When most infesting grasshoppers have reached the 2nd and 3rd nymphal stage of development, Cavalier 2L should be applied. For effective control, apply before grasshoppers reach the adult stage.

IMPORTANT

- Due to the distinctive mode of action of Cavalier 2L, it could take up to 5 to 7 days following application to show first signs of control (populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting)
- If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper population soon enough to minimize extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.
- Maximum number of applications per season is 3
- Maximum amount of product per acre is 24 fl. oz. per season
- Pre-harvest interval is 28 days

PEPPER – Bell and Non-Bell

Application Instructions

Cavalier 2L can be applied aerially, in 3 to 10 gallons (total volume) per acre, or by ground application, in a minimum of 30 gallons (total volume) per acre. Make sure that application volume is sufficient for adequate coverage.

Adjuvants: see COTTON section.

Application Rate

Apply 4 to 8 fl. oz. per acre

Pepper Weevil - Make application when pepper plants begin to flower. For more thorough coverage of expanding fruit and new foliage, Cavalier 2L can be reapplied every 7 days (note – do not exceed seasonal application rate of 24 fl. oz. product per acre). For moderate to heavy infestations, use higher rate. Cavalier 2L does not control adult pepper weevils, but adult contact or consumption of Cavalier 2L will bring about reduced hatching of eggs from these adults.

Armyworm (Beet, Fall Southern) and other Lepidopteran insects that feed on pepper foliage:

For control of armyworms and to lessen damage to fruit and leaves, make application when armyworm larvae are small. For more thorough coverage of expanding fruit and new foliage, Cavalier 2L can be reapplied every 7 days (note – do not exceed seasonal application rate of 24 fl. oz. Cavalier 2L per acre). For heavy infestations, or if product is applied alone, use higher rate.

Tank Mixes: If presence of late instar larvae are detected, tank mix Cavalier 2L with an insecticide that provides insect knockdown. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

IMPORTANT

- Maximum amount of product per season is 24 fl. oz. per acre
- Maximum number of applications per season is 5
- Pre harvest interval is 7 days
- Due to the distinctive mode of action of Cavalier 2L, it could take up to 5 to 7 days following application to show first signs of control (populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting)

RICE

Application Rate and Instructions

Apply Cavalier 2L aerially, in at least 5 gallons total volume per acre.

Rice Water Weevil:

When adults have reached an economic threshold or begin laying eggs, application of Cavalier 2L will control rice weevil larvae. Local extension service or university experts can advise regarding egg laying and economic threshold. Use the rates indicated below:

- California – Make one 8 to 16 fl. oz. per acre application (for historically high infestations, use 12-16 fl. oz. rate). Apply to rice in CA when rice is at 2 to 4 leaf stage, typically 2-5 days after rice emerges above water.
- Southern U. S. Rice Belt – water seeded, pinpoint flood or continuous flood rice – Apply 8 fl. oz. per acre application (typically when rice leaves have emerged above water). Make second 8 fl. oz. application 5 to 7 days later. [NOTE – not making second application in indicated time frame could lead to unsatisfactory control, particularly for higher infestations or prolonged migration]
- Southern U. S. Rice Belt – drill seeded, dry seeded or water seeded delayed flood rice – Make one 12 to 16 fl. oz. per acre application (for historically high infestations, or prolonged migration of weevils into rice field, use higher application rate). Apply to rice 2 to 5 days after permanent flood establishment.

For optimum results, wait 7 days to disturb flood after single application, and for split application, wait 4 days to disturb flood after first treatment and 7 days to disturb flood after second treatment.

Tank Mixes: Cavalier 2L can be tank mixed with rice post permanent flood herbicides, such as those containing the active ingredient quinclorac, triclopyr or bensulfuron methyl, as it does not exhibit any phytotoxicity to rice. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

IMPORTANT

- Preharvest interval is 80 days
- To avoid decreased activity, apply Cavalier 2L when field flooding is not in progress
- Treat entire field with Cavalier 2L (do not try to treat specific sections of rice field)
- Not for use on wild rice (*Zizania* spp.)
- Granular material treated with Cavalier 2L cannot be used in rice
- Cavalier 2L should not be used around crayfish (crawfish):
 - Do not use on rice fields that are also used for crayfish farming
 - Do not use on rice fields that are directly next to sites of crayfish farming
 - Do not drain treated water onto fields where crayfish are farmed
- Floodwaters from treated rice are only to be used to irrigate crops listed on Cavalier 2L's label.
- Retain treated floodwaters at least 14 days, to give Cavalier 2L time to dissipate
- Cavalier 2L does not control adult weevils directly, adults feeding on treated plants will not lay viable eggs
- Cavalier 2L prevents larvae from hatching, and controls eggs laid under water treated with Cavalier 2L

SOYBEANS (Except California)

Application Instructions

Cavalier 2L can be applied aerially, in 3 to 5 gallons water per acre, or by ground application, in 9 to 35 gallons water per acre. Make sure that application volume is sufficient for uniform coverage.

Adjuvants: See COTTON section.

Application Rate

Velvet Bean Caterpillar, Mexican Bean Beetle, Green Cloverworm: apply 2-4 fl. oz. per acre

For lower insect damage and optimum control, apply when larvae are small (less than 1/2 inch). Cavalier 2L can be reapplied if necessary, to control reappearance of damaging numbers of pests, after an application interval of 30 days. When soybean pod formation has begun, after vegetative growth is complete, Cavalier 2L applied at the lower rate (2 fl. oz) can prevent velvetbean caterpillar buildup.

Beet Armyworm, Fall Armyworm, Soybean Looper (suppression): apply 4 fl. oz. per acre

For optimum control, apply before populations build, and when worms are small in size.

Grasshopper: apply 2 fl. oz. per acre

When most infesting grasshoppers have reached the 2nd and 3rd nymphal stage of development, Cavalier 2L should be applied. For effective control, apply before grasshoppers reach the adult stage.

Tank Mix: Apply Cavalier 2L tank mixed with a knockdown insecticide if soybean fields experience a large grasshopper population incursion from adjacent and nearby fields, to reduce extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

Soybean yield enhancement: Cavalier 2L can increase soybean seed yield in both determinate and indeterminate cultivars, under certain growing conditions, and LOW insect pressure. Making application of Cavalier 2L at 2 to 4 fl. oz., at the R3 (beginning of pod growth – fully developed leaf with pod of 3/16 inches in length on main stem uppermost node) or R3.5 (pod almost fully elongated – fully developed leaf with pod 3/4 inches in length on main stem uppermost nodes) growth stages will result in most consistent yield increase.

IMPORTANT

- Do not use on soybeans in the State of California
- Due to the distinctive mode of action of Cavalier 2L, it could take up to 5 to 7 days following application to show first signs of control (populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting)
- Maximum number of applications per season is 2
- Pre-harvest interval is 21 days

TURFGRASS (for use on sod farms only)

Application Instructions

Cavalier 2L can be applied in 20 to 50 gallons of water per acre. Use higher volume of water for greater insect pressure or dense foliage.

Application Rate

Armyworms (Fall, True, Southern Beet, Yellow-striped), Sod Webworm, Striped Grass Looper, Granulate Cutworm and other Lepidopteran foliage-feeding caterpillars:

Apply 2 fl. oz. per acre

Make application while caterpillar larvae are small (less than 1/2 inch long, prior to reaching fourth instar growth stage), and at first sign of hatch out. Populations will be decreased once larvae consume Cavalier 2L and undergo molting.

IMPORTANT

- Maximum number of applications per year is 4

ORCHARD CROPS

ORANGE, GRAPEFRUIT, TANGERINE, PUMMELO and their hybrids

Application Instructions

Cavalier 2L can be applied aerially, in 5 to 20 gallons (total volume) per acre, or by ground application, in 50 to 100 gallons (total volume) per acre. Make sure that application volume is sufficient for uniform coverage. Optimum results on the largest range of pests will be gained from applying Cavalier 2L when new flush is emerging and/or present, however product can be applied to citrus at any time of the year.

Application Rate

For all citrus pests, apply Cavalier 2L at a rate of 20 fl. oz. per acre.

Asian Citrus Psyllid (*Diaphonia citri*)

Make application when Asian Citrus Psyllid (ACP) oviposition is seen or expected, when early feather leaf flush is present, or when leaf distortion is evident.

To maximize coverage of the entire leaf flush, make split application by spraying half of volume of product (10 fl. oz. per acre) as indicated above (oviposition seen or expected, early-feather leaf flush is present, leaf distortion is evident), and the other half (10 fl. oz. per acre) to protect new growth flush, as needed. Wait at least 90 days for subsequent applications of Cavalier 2L.

Citrus Rust Mite (*Phyllocoptruta oleivora*)

Make application when Citrus rust mites (CRM) are first observed on fruit or leaves.

For CRM control programs, rotate to an insecticide with a different mode of action before applying Cavalier 2L. Activity of Cavalier 2L on CRM is on immature stages, with most activity on late-instar CRM and may not reach full effect for up to 14 days after application.

Lepidopterous Miners: Citrus Leafminer (*Phyllocnistis citrella*)

Make application when Citrus Leafminer (CLM) oviposition is seen or expected, when leaf flush is present and oldest leaf is expanded by one-quarter, or when leaf mining is evident.

To maximize coverage of the entire leaf flush, make split application by spraying half of volume of product (10 fl. oz. per acre) as indicated above (oviposition seen or expected, leaf flush is present, leaf distortion is evident), and the other half (10 fl. oz. per acre) to protect new growth flush, as needed. Wait at least 90 days for subsequent applications of Cavalier 2L.

Lepidopterous Miners: Citrus Peel Miner (*Marmara* spp.)

Make application when citrus peel surfaces show Citrus peel miner (CPM) oviposition, or when expected.

To maximize coverage of the fruit surface, make split application by spraying half volume of product (10 fl. oz. per acre) when CPM oviposition begins, and the other half (10 fl. oz. per acre) to protect expanded fruit growth, as needed. Wait at least 90 days for subsequent applications of Cavalier 2L. Protection from CPM larvae will lessen over time as fruit expands and new, unprotected tissue develops, but may last up to several weeks.

Citrus Root Weevil Complex: West Indian Sugarcane Rootstalk Borer Weevil (*Diaprepes abbreviatus*), Southern Blue-Green Citrus Root Weevil (*Pachnaeus litus*), Blue-Green Citrus Weevil (*Pachnaeus opalus*) Fuller Rose Beetle (*Asynonychus godmani*), Little Leaf Notcher (*Artipus flondanus*)

Make application to citrus leaf flush when Citrus root weevils (CRW) are seen, when oldest leaf is expanded by one-half, or when recent leaf feeding is evident.

Katydid, Grasshoppers:

Make application when katydids or grasshoppers are seen, or recent feeding on leaves or fruit is noticed.

To maximize coverage and protection of leaves and fruit, make split application by spraying half of volume of product (10 fl. oz. per acre) as indicated above (katydids or grasshoppers are seen, recent feeding on leaves or fruit), and the other half (10 fl. oz. per acre) to protect new growth, as needed. Wait at least 90 days for subsequent applications of Cavalier 2L.

Adjuvants - To enhance spray coverage, add a petroleum spray oil, such as FC435-66. Addition of a spray oil also aids knockdown of existing populations (CRM), penetration or absorption of Cavalier 2L into immature stages of insects², mines³, eggs^{1,3,4,5,6,7}, larvae³, pupae³, nymphs^{1,6,7} and adults^{1,6,7}. A spray oil improves Cavalier 2L's activity, which is to prevent eggs from hatching, larvae or nymphs from molting, moths from emerging from pupae, and limiting eggs laid or able to hatch by adult females when exposed to Cavalier 2L through contact, ingestion and/or absorption. Spray oil also limits egg mass attachment to citrus leaf surface³.

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|--------------------------------|-----------------------|
| 1 – Asian Citrus Psyllid | 2 – Citrus Rust Mite |
| 3 – Citrus Leafminer | 4 – Citrus Peel Miner |
| 5 – Citrus Root Weevil Complex | 6 – Katydid |
| 7 – Grasshopper | |

IMPORTANT:

- Application of Cavalier 2L when new citrus flush has emerged will give best control of the most pests, however it can be applied anytime during the year
- **Ground Application:** Do not apply within 25 feet of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries. **In the State of Florida**, do not apply within 100 feet of estuarine/marine bodies of water. Spray last three rows windward of surface water using nozzles on one side only, with spray directed away from surface water. Avoid spray going over tops of trees by adjusting or turning off top nozzles. Shut off nozzles on one side away from the grove when spraying the outside row. Shut off nozzles when turning at ends of rows and passing tree gaps in rows.
- **Aerial Application:** Do not apply within 150 feet of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries. **In the State of Florida**, do not apply within 1000 feet of estuarine/marine bodies of water.
- Maximum amount of product per acre is 60 fl. oz. per year
- Pre-harvest interval is 21 days.
- Wait a minimum of 90 days for repeat application (except when making split applications, as per instructions, above)
- Cavalier 2L affects existing ACP, CLM and citrus root weevil populations by diminishing their reproductive ability.
- Cavalier 2L does not control the following insect growth stages:
 - Adult Asian citrus psyllid, citrus root weevils, katydids or grasshoppers
 - Adult Citrus Rust mite or Citrus rust mite eggs
 - Citrus Leafminer or Citrus peel miner moths

PEAR

Application Instructions

Apply Cavalier 2L in a minimum of 80 to 400 gallons of water per acre. Make sure that application volume is sufficient for uniform coverage.

Application Rate

Pear Psylla, Pear Rust Mite (pre-bloom) – apply 40 – 48 fl. oz. per acre

Make application any time from delayed dormant period to white bud, or 'popcorn,' stage of growth, and during the deposition of pear psylla eggs so that Cavalier 2L contacts eggs and/or 1st and 2nd instar nymphs. Make sure tree is completely and uniformly covered with spray for optimum insect control.

Additives: During delayed dormant period, apply Cavalier 2L with 4 to 6 gallons per acre of a horticultural mineral oil. When applying during other growth periods, through the white bud, or 'popcorn,' stage, apply Cavalier 2L with 0.25% horticultural oil (maximum of 1 gallon horticultural oil per acre). Additionally, coverage can be enhanced with the use of a surfactant (follow surfactant label instructions).

Codling Moth, suppression of **Pear Psylla** (post bloom) – apply 12 to 16 fl. oz. per acre

Make application as soon as possible after first codling moths are observed or caught (biofix), or about 50-75 degree days after biofix. Cavalier 2L prohibits hatching of codling moth eggs, and must be applied to trees before eggs are laid, so that laid eggs are deposited on treated surfaces. Make sure that entire tree surface, including fruit and foliage is treated with Cavalier 2L. If codling moth pressure is light, or if pear trees are small, use lower rate. Timing of application is extremely important. Timing can be determined by local fruit specialist or pest control consultant, by employing the use of pheromone traps. Typically the optimum time for application will occur around 10 – 14 days prior to application of an organophosphate insecticide, or around late petal fall.

A second application of Cavalier 2L should be applied 14 – 18 days after initial application.

If necessary (prior to egg laying of 2nd generation, as determined by timing indicated above, for 1st generation), a third and fourth application can be made. If the use of pheromone traps are not employed, the third application should be made 21-30 days after the 2nd, or 1000 degree days after biofix. The fourth application should be made 21-30 days after the third.

Tank Mixes: For more effective control of moderate to heavy codling moth infestations, when treating large trees, or for optimum timing of Cavalier 2L spray (to save a trip through the orchard), Cavalier 2L can be combined with organophosphate insecticides. Apply at the normal time for the first organophosphate cover spray, which occurs at the beginning of egg hatch (250 degree days following biofix for 1st generation, or 1250 degree days following biofix for 2nd generation). Application of this tank mixture can be repeated for 2nd and 3rd generations of codling moth, or Cavalier 2L alone can be used prior to egg laying. For late season control, oil should not be used in the tank mix. When codling moth populations are low, an organophosphate / Cavalier 2L mixture could control an entire generation with 1 application. For heavy populations, this combination of Cavalier 2L/organophosphate may not control the entire generation with one spray. In that case apply a second spray 14 – 18 days later of Cavalier 2L alone or in combination with an organophosphate, so that eggs laid after insecticide application will be residually controlled. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

Leafminer – apply 8 to 16 fl. oz. per acre

For control of leafminer larvae and eggs, make application during or just before eggs are laid. Fruit specialist or local pest control consultant can advise about timing for control of 1st or 2nd generations of leafminer. Cavalier 2L can also be applied for control of later generations. For control through early sap feeding stage, Cavalier 2L should be applied prior to egg laying. For control of leafminer larvae throughout the sap feeding stage, make sure that foliage is completely covered.

IMPORTANT

- Using oil with Cavalier 2L could cause certain pear varieties to display injury. Local fruit tree specialists can advise on compatibility of oil mixtures.
- Do not use oil with Cavalier 2L for late season (3rd and 4th) applications.
- Maximum number of applications per year is 4
- Maximum amount of product per season is 64 fl. oz. per acre
- Pre harvest interval is 14 days.

STONEFRUIT (excluding cherries)

Includes: Apricot, Nectarine, Peach, Plum, Prune

Application Instructions

Apply Cavalier 2L by ground in a minimum of 50 gallons of water for trees up to 10 feet tall and a minimum of 100 gallons of water for larger trees. For optimal results, use enough water for sufficient coverage and make sure that canopy is evenly and thoroughly covered.

Application Rate

Peach Twig Borer: apply 12 – 16 fl. oz. per acre (use higher rate for orchard with a history of heavy infestations)

Dormant / delayed dormant application: apply with a narrow range oil (4 to 6 gallons per acre or 1.5 to 2.0 gallons per 100 gallons spray volume in a dilute spray).

Bloom application: Application can be made with a vegetable oil (1 qt. per acre), with application starting at early bloom.

Leafroller (Filbert, Oblique Banded, Omniverous, Variegated), Moth (Oriental Fruit, Winter), Fall Webworm, Walnut Caterpillar: apply 8 – 16 fl. oz. per acre.

Make application when insect larvae are first observed. The higher use rate will give longer residual control. It should also be used if foliage is heavy or dense, if pest infestations are high, or if trees are larger or crop load is low.

Grasshoppers, Katyids (for use in **Peach Orchards in GA ONLY**): Apply 2 fl. oz. per acre

Make application to peach orchards or surrounding vegetation when immature insects are first observed. The higher use rate should be used if foliage is heavy or dense, if pest infestations are high, if trees are larger, or for longer residual control. Larvae and nymphs could take up to 5 to 7 days following application to show visible effects, due to the distinctive mode of action of Cavalier 2L.

Cavalier 2L will not control adult grasshoppers. If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper populations soon enough to minimize extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statement, directions for use, rates and timings, and other restrictions.

IMPORTANT:

- Maximum amount of product per year is 32 fl. oz. per acre (16 fl. oz. when applied to grasshoppers and katydids in peach orchards in GA only)
- Maximum number of applications per year is 2 (or when applied to grasshoppers or katydids in peach orchards in GA only, as needed, up to application of 16 fl. oz per acre)
- Wait a minimum of 21 days between Cavalier 2L applications
- Cavalier 2L is not to be applied to stonefruit after petal fall (with the exception of applications to grasshoppers or katydids in peach orchards in GA only)
- Preharvest interval for use on grasshoppers or katydids in peach orchards in GA is 14 days.

TREE NUTS GROUP

(includes Almond, Beech nut, Brazil nut, Butternut, Chestnut, Chinquapin, Filbert (hazelnut), Hickory nut, Macadamia nut (bush nut), Pecan, Pistachio, Walnut (Black and English))

Application Instructions

Apply Cavalier 2L by ground in a minimum of 50 gallons of water for trees up to 10 feet tall and a minimum of 100 – 300 gallons of water for larger trees. For optimal results, use enough water for sufficient coverage and make sure that canopy is evenly and thoroughly covered.

Application Rate

Filbert Worm: apply 12 – 16 fl. oz. per acre

Apply Cavalier 2L before eggs are laid on treated foliage, or when moths first emerge from cocoon – if using pheromone detection traps, 2 to 3 days after first moth catch [mating takes place soon after emergence and egg laying begins the following day]. Make sure that tree and foliage coverage is uniform for best control. Use lower rate if trees are small or worm pressure is low. Use higher rate if trees are larger, or worm pressure is moderate to high. If necessary (continuing high moth pressure), a subsequent application of Cavalier 2L should be made.

Hickory Shuckworm: apply 8 – 16 fl. oz. per acre

Split Application – for optimum control, apply 4 to 8 fl. oz. Cavalier 2L when larvae begin to feed or when hickory shuckworm moth emerges; make second 4 to 8 fl. oz. application two weeks later.

Cavalier 2L can also be applied at half-shell hardening, with additional applications 21 days later, up to shuck split, or while heavy insect infestations are present. Use the higher rate on heavy, dense foliage, on larger trees or low crop load, or under higher pest infestations.

Codling Moth– apply 16 fl. oz. per acre

For optimum control, apply prior to egg laying. Apply a full coverage spray to orchard so that eggs are laid on a surface that is treated with Cavalier 2L.

Apply when first moths hatch (determine by moth flight or pheromone traps). Following application should be made 21 days later. This timing is appropriate for first or second generation (brood).

Tank Mixing – Cavalier 2L can be tank mixed with an organophosphate insecticide at its lowest label rate to control extended populations of codling moth because of variations in emergence time due to temperature fluctuations or overwintering. Application should occur at normal timeframe for an organophosphate insecticide. Additionally, if Cavalier 2L is not initially applied prior to egg laying, then tank mixing with an organophosphate insecticide as indicated above will enhance control. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

Peach Twig Borer – apply 12 – 16 fl. oz. per acre (use higher rate for orchards with a history of heavy infestations)

Dormant / delayed dormant application: apply with a narrow range oil (4 to 6 gallons per acre or 1.5 to 2.0 gallons per 100 gallons spray volume in a dilute spray).

Bloom application: Application can be made with a vegetable oil (1 qt. per acre), with application starting at early bloom.

Spring Flight ('May Spray') or Summer Flight – Apply Cavalier 2L at initial flight activity (as determined by pheromone traps).

Pecan Nut Case-Bearer: apply 8 – 16 fl. oz. per acre

Apply Cavalier 2L as a split application as indicated:

- For optimum control and best nut set, apply first application of 4 – 8 fl. oz. at bud break and second application 14 days later [in southeastern U. S., bud break would typically occur in mid-April]
- For control of adult generations and to target egg hatch, make first application of 4 – 8 fl. oz. 8 to 15 days following biofix (threshold is reached when 5 moths are captured in 3 pheromone traps in a 7 day period)

Local extension service or university experts may have different or additional recommendations regarding Cavalier 2L application. Consult them prior to use. Use the higher rate on heavy, dense foliage, on larger trees or low crop load, or under higher pest infestations.

Pecan Weevil (suppression): apply 8 – 16 fl. oz. per acre

Use the higher rate for moderate to heavy infestations, or if weevils are attacking crop.

Leafroller (Filbert, Oblique Banded, Omniverous, Variegated), Moth (Oriental Fruit, Winter), Fall Webworm, Omniverous Leaf-tier, Caterpillar (Redhumped, Walnut): apply 8 – 16 fl. oz. per acre
Make application as soon as larval infestations are detected. Use the higher rate on heavy, dense foliage, on larger trees or low crop load, or under higher pest infestations.

Tent Caterpillar (for use in almonds, pecans, pistachios and walnuts (black and English)).
Apply 8 – 16 fl. oz. per acre

Make application as soon as larval infestations are detected. Use the higher rate on heavy, dense foliage, on larger trees or low crop load, or under higher pest infestations.

IMPORTANT

- Pre-harvest interval is 28 days
- Maximum amount of product per growing season is 64 fl. oz. per acre
- Maximum number of applications per year is 4 (3 for walnuts)
- If four applications are made to tree nuts, the timing should correspond to:
 - Dormant to pre-bud swell
 - Bloom to petal fall
 - Flowers/leaves/immature nut fruit formation
 - Hull split

NON-CROP USES

LIVESTOCK AND POULTRY PREMISES

Including barns, dairies, equine facilities, farms, farm buildings, feedlots, poultry houses and other production facilities. Cavalier 2L application can be made to feed troughs, feed bunks, fence lines of holding pens, hay bale feeders, water troughs and waste retention ponds (marginal areas of), and Cavalier 2L can control insects on/around bedding material, cage frames, ceilings, feed muck/spoilage, floors, litter, manure, manure/straw mixtures, posts, spoiled organic refuse, stale/waste feed and walls / wall footings.

Application Instructions and Rate

Carrion Beetle, Darkling Beetle, Hide Beetle (Except California):
Apply 12 fl. oz. Cavalier 2L in 2 to 20 gallons of water per 1000 ft²

Broadcast – Cavalier 2L can be applied as a broadcast spray to the whole facility, including the following areas: walls, posts and cage frames (at least 1 foot up from floor); cracks and crevices around insulation; litter following de-caking (making sure to thoroughly treat areas under water and feed lines). Make sure spray volume (which will be dependent on litter depth) is sufficient to completely and uniformly wet litter and other surfaces.

Banded Application – Cavalier 2L can be applied only where pests congregate, including along perimeter walls and side and end walks, and under water and feed lines. Make sure spray volume (which will be dependent on litter depth) is sufficient to completely and uniformly wet litter and other surfaces, in a 2-4 foot wide band under, around and next to target areas. If lower sections of walls, posts and cage frames are treated, make sure to apply product at least 1 foot up from floor.

Flies (including House, Stable, Face, Horn)

Broadcast - Apply 12 fl. oz. Cavalier 2L in 2 to 20 gallons of water per 1000 ft²

Cavalier 2L can be applied as a broadcast spray to the whole facility, including the following areas: walls, posts and cage frames (at least 1 foot up from floor); cracks and crevices around insulation; litter following de-caking (making sure to thoroughly treat moist areas and areas under water and feed lines). Make sure spray volume (which will be dependent on litter depth) is sufficient to completely and uniformly wet litter and other surfaces.

Spot Treatment – Apply 5 fl. oz. Cavalier 2L in 10 gallons of water

Make a directed spray application when flies first appear. 1 quart of spray solution should be applied to 10 ft² of surface (10 gallons spray solution treat 400 ft²). Repeat applications can be made when fly numbers begin to increase – usually within 14 to 21 days.

IMPORTANT

- Do not apply this product for control of Carrion Beetle, Darkling Beetle or Hide Beetle in the State of California.
- Application is not to be made directly to livestock or poultry
- Feed or water is not to be contaminated by application of Cavalier 2L; exposed feed or water is to be covered or removed from treatment area.
- Cavalier 2L provides extended control of eggs and developing larvae, but not pupal or adult stages of insects; contact or ingestion of Cavalier 2L by adults will adversely affect number of and viability of eggs.
- If a large population of adult insects is present, applying a knockdown insecticide (either alone or tank mixed with Cavalier 2L) is recommended for quick decrease of population. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.
- If controlling insects around hay feeding sites, make product application around entire soil surface where livestock activity mixes the waste hay and manure

GRASSLAND

For control in grassland, including rangeland, pastures, improved pastures and similar areas used for production of native, domesticated forage grasses for harvest for livestock primarily for grazing or mechanical harvest, grasses/forages/cellulosic crops grown for biofuel, biomass or bioenergy production, including switchgrass, miscanthus sp., etc.

Application Instructions

Cavalier 2L may be applied aerially (high or low volume application) in 2 to 5 gallons water per acre, or by ground application (low or high volume) in 2 to 30 gallons of water per acre. For rangeland ULV (aerial or ground), apply in a minimum of 12 fl. oz. total volume per acre. Make sure that target crop is completely covered.

Adjuvants and Additives: For aerial and ULV application, especially when high air temperature or low humidity favor evaporation, add a product that retards evaporation and drift to the spray mixture. If this product is oil-based, mix 1 part oil to at least 2 parts water.

Application Rate

2 fl. oz. per acre

Horn Fly, Face Fly

Make application to cow manure patties. Cavalier 2L will provide at least 14 days of control of flies emerging from cow manure.

Fall Armyworm, Striped Grass Looper, other Lepidopteran foliage feeding caterpillars

Make application while caterpillar larvae are small (less than ½ inch long, prior to reaching fourth instar growth stage), and at first sign of hatch out. Populations will be decreased once larvae consume Cavalier 2L and undergo molting.

Grasshopper, Mormon Cricket

- Make one application at 1 to 2 fl. oz. per acre on grasshoppers or Mormon crickets at early instar growth stages (i.e., 2nd through 4th instar nymphal stages). A second application, at 0.5 to 1 fl. oz. per acre can be made 14 to 21 days after first application. For application on pastureland, use higher use rate.
- For RAAT (Reduced Area and Agent Treatment*) application on early instars in rangeland only, apply 0.75 to 1 fl. oz. per acre. Use lower rate, and skip up to 50% of the infested area (i.e., for every 100 feet

treated, skip the next 100 ft. swath) if most of infestation is at early instar growth stage, vegetation is sparse, and topography is uniform. Use higher rate and 100% coverage if most of the infestation is at a late instar growth stage, vegetation is dense, terrain is rough and/or application is being made when temperature is high. A second application, at 0.5 to 1 fl. oz. per acre can be made 14 to 21 days after first application.

* A RAAT application is a grasshopper IPM program that takes advantage of the grasshopper's natural tendency to move as they feed. As grasshoppers move from untreated to treated areas and eat foliage treated with Cavalier 2L, they are killed once molting occurs. The rate of Cavalier 2L is lowered and applied in alternating treated and untreated strips. A RAAT treatment reduces application cost, giving ranchers a cost effective way to control grasshoppers or Mormon crickets on their rangeland, depending on severity of infestation, insect growth stage and density of vegetation.

If treated areas have a dense canopy, if nymphs have passed the third instar growth stage, and/or if temperature and climate encourage insect survival and proliferation, use higher rates of Cavalier 2L. Cavalier 2L should be applied after egg hatch, through early instar growth stages, as it will not control the adult stages of these insects. Cavalier 2L's residual activity will continue to control larvae later in the season.

Tank Mix: Apply Cavalier 2L tank mixed with a knockdown insecticide or grasshopper adulticide if adults are present (due to overwintering or early hatching) to reduce extensive foliage feeding. Make sure tank mix partners are compatible prior to mixing and adding to main spray tank. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

IMPORTANT

- Maximum amount of product per cutting is 2 fl. oz. per acre
- Maximum amount of product per year is 6 fl. oz. per acre
- Wait at least 1 day following Cavalier 2L application prior to cutting grass.
- Apply when possibility of drift to sensitive areas (residential, non-target crops, water bodies, threatened or endangered species habitat) is small.
- For low volume and ULV applications, continue constant agitation while mixing and applying Cavalier 2L, and make sure the appropriate concentration of Cavalier 2L is mixed in the boom before application begins.
- Due to the distinctive mode of action of Cavalier 2L, it could take up to 5 to 7 days following application to show first signs of control (populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting)
- In response to treatment with Cavalier 2L, Mormon crickets could exhibit structural deformities (such as malformed abdominal segments, twisted antennae, wrinkled wings, missing posterior legs, hernias, hemolymph exudation). This could result in behaviors (such as inability to fly, limited jumps and unsteady landings, slower movement, reduction in feeding) which cause the nymphs or adults to be more vulnerable to predators (birds, mammals or other insects)

NON-CROP AREAS

Including field border, fence rows, roadsides, farmsteads, ditchbanks, wasteland, Conservation Reserve Program (CRP) land

Application Instructions

Cavalier 2L may be applied aerially (high or low volume application) in 2 to 5 gallons water per acre, or by ground application (low or high volume) in 2 to 30 gallons of water per acre.

For additional Application Instructions, see Grassland Directions for Use.

Application Rate

2 fl. oz. per acre

Grasshopper, Mormon Cricket

Insects can be managed in their breeding areas prior to migration into cropland or other undesirable areas with application of Cavalier 2L.

See Grassland Directions for Use for additional instructions and application information.

Fall Armyworm, Striped Grass Looper and other Lepidopteran foliage-feeding caterpillars

Make application while caterpillar larvae are small (less than ½ inch long, prior to reaching fourth instar growth stage), and at first sign of hatch out. Populations will be decreased once larvae consume Cavalier 2L and undergo molting.

IMPORTANT

- Maximum amount of product per application is 2 fl. oz. per acre
- Maximum amount of product applied per year is 6 fl. oz. per acre

See Grassland Directions for Use for other restrictions and comments

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

PESTICIDE STORAGE: Store product in its original labeled container only.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER HANDLING

Plastic containers: Nonrefillable container. Do not reuse or refill this container. Triple rinse or pressure rinse (or equivalent) promptly after emptying.

Triple rinse as follows: For containers small enough to shake: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. For containers too large to shake: Empty remaining contents into a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the rinsate into a mix tank and store for later use or disposal. Repeat the procedure two more times.

Pressure rinse as follows: Empty the remaining contents into a mix tank and continue to drain for 10 seconds after the flow continues to drip. Hold container upside down over mix tank to collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Then offer container for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Recycling: Once cleaned, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. To find the nearest site, contact your chemical dealer or manufacturer or contact Ag Container Recycling Council (ACRC) at 1-877-952-2272 (toll free) or www.acrecycle.org.

LIMITED WARRANTY

Raymat Crop Science, Inc. warrants only that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the label, under average use conditions, when used strictly in accordance with the label and subject to the Risks of Using This product as described above. To the extent consistent with applicable law AND AS SET FORTH ABOVE, RAYMAT CROP SCIENCES, INC. MAKES NO OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED. No agent or representative of Raymat Crop Sciences or Seller is authorized to make or create any other express or implied warranty.

LIMITATION OF LIABILITY

To the fullest extent allowed by law, Raymat Crop Sciences, Inc., or Seller is not liable for any incidental, consequential, indirect or special damages resulting from the use or handling of this product. The limitation includes, but is not limited to, loss of yield on all or any portion of the treated acreage, increased care, treatment or other expenses required to take the crop to harvest, increased finance charges or altered finance ratings, emotional or mental distress and/or exemplary damages. TO THE FULLEST EXTENT ALLOWED BY LAW, THE EXCLUSIVE REMEDY OF THE BUYER, AND THE EXCLUSIVE MAXIMUM LIABILITY OF RAYMAT CROP SCIENCES, INC. OR SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR

DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT SHALL BE THE RETURN OF THE PURCHASE PRICE OF THIS PRODUCT OR, AT THE ELECTION OF RAYMAT CROP SCIENCES, INC OR SELLER, THE REPLACEMENT OF THE PRODUCT.

PROMPT NOTICE OF CLAIM

To the extent consistent with applicable law allowing such requirements Raymat Crop Science, Inc. must be provided notice as soon as Buyer has reason to believe it may have a claim, but in no event later than twenty-one days from the date of application, whichever is later, so that an immediate inspection of the affected property and growing crops can be made.

To the extent consistent with applicable law if Buyer does not notify Raymat Crop Sciences, LLC of any claims in such period, it shall be barred from obtaining any remedy.

NO AMENDMENTS

Raymat Crop Sciences, Inc. and Seller offer this product, and Buyer accepts it, subject to the foregoing Disclaimer, Risks of Using This product, Limited Warranty and Limitation of Liability, which may not be modified by any oral or written agreement.

EPA 20140213

S: 947787

Milestone Email:

Regulatory Type: Product Registration - Section 3

Application Type: Notification

*amendment*Resubmission: ☐ Yes ☒ NoFee For Service: ☐ Yes ☒ No

Print Letter

Enter More Information

Tracking

Company: 89799 RAYMAT CROP SCIENCE, INC

V

Risk Manager: Registration Division, Risk Management Team 7

Product #: 89799-1

Product Name: CAVALIER 2L

Me Too
Section3: 400-461Me Too
Product Name: DIMILIN 2L

Application Date: 13-Feb-2014



OPP Rec'd Date: 18-Feb-2014



Front End Date: 18-Feb-2014



Risk Manager Send Date: 18-Feb-2014



FFS Due Date:

Negotiated Due Date: 3/5/14

OPP Target Date:

Fast Track: ☐New Ingredient: ☐

Receipt Description:

NOTIFICATION OF MINOR LABEL REVISION PER PRN 98-10
amendment

Receipt Content

Des

Paper Label

Electronic Label

View/Edit

Form A: ☐

Signature Date:

Form B: ☐

Signature Date:

PYXIS REGULATORY CONSULTING, INC.

4110 136th St. NW
Gig Harbor, WA 98332

Phone: 253-853-7369
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March 5, 2014

ELECTRONIC DELIVERY

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Document Processing Desk (AMEND)
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Room S-4900, One Potomac Yard
2777 S. Crystal Drive
Arlington, VA 22202-4501

03/05/2014

RE: Raymat Crop Science, Inc. – Cavalier 2L (EPA Reg. No. 89799-1)
Submission of a Non-PRIA Fast Track Label Amendment to Facilitate Registration in the State of Florida

Dear Mr. Baris,

On behalf of Raymat Crop Science, Inc., please find the enclosed label amendment to facilitate registration in the state of Florida. The state of Florida has issue with the phrase "Maximum *amount* of applications..." appearing on the Cavalier 2L label in several places and requested the phrase be revised to read "Maximum *number* of applications..."

Changes made to the enclosed label include:

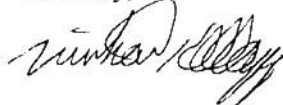
- P. 11 – Revised "Maximum amount of applications per season is 5" to read "Maximum number of applications per season is 5"
- P. 13 – Revised "Maximum amount of applications per year is 4" to read "Maximum number of applications per year is 4"
- P. 17 – Revised "Maximum amount of applications per year is 2..." to read "Maximum number of applications per year is 2..."
- P. 19 – Revised "Maximum amount of applications per year is 4 (3 for walnuts)" to read "Maximum number of applications per year is 4 (3 for walnuts)"

In support of this amendment submission, we submit the following documents:

1. Completed Application for Amendment (EPA Form 8570-1)
2. One (1) copy of the Cavalier 2L labeling with changes tracked
3. One (1) copy of the Cavalier 2L labeling with changes incorporated
4. Certification with Respect to Label Integrity
5. One (1) copy of the Cavalier 2L labeling on CD
6. Letter of Authorization

Please feel free to contact me by phone (253) 853-7369 or by email at Mike@PyxisRC.com if you have any questions or need any additional information.

Sincerely,



Michael Kellogg

Enclosures



United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☒ Amendment
☐ Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 89799-1	2. EPA Product Manager R. Baris	3. Proposed Classification <input type="checkbox"/> None <input checked="" type="checkbox"/> Restricted
4. Company/Product (Name) Raymat Crop Science, Inc. / Cavalier 2L	PM# 7	
5. Name and Address of Applicant (Include ZIP Code) Raymat Crop Science, Inc. c/o Pyxis Regulatory Consulting, Inc. 4110 136th St. NW Gig Harbor, WA 98332 <input type="checkbox"/> Check if this is a new address		6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____

Section - II

<input checked="" type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Submission of a non-PRIA fast track label amendment to facilitate registration in the state of Florida. Please feel free to contact me by phone (253) 853-7369 or by email at Mike@PyxisRC.com if you have any questions or need any additional information.

Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Metal	
* Certification must be submitted				<input type="checkbox"/> Plastic	
				<input type="checkbox"/> Glass	
				<input type="checkbox"/> Paper	
				<input type="checkbox"/> Other (Specify) _____	
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container 1 gallon, 2.5 gallon, 55 gallon, bulk		5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product	
6. Manner in Which Label is Affixed to Product <input checked="" type="checkbox"/> Lithograph <input type="checkbox"/> Other _____ <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled					

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)			
Name Michael Kellogg		Title Agent	
		Telephone No. (Include Area Code) (253) 853-7369	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.			8. Date Application Received (Stamped)
2. Signature 		3. Title Agent	
4. Typed Name Michael Kellogg		5. Date 3/5/14	

Certification with Respect to Label Integrity

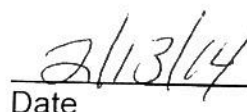
version: 9/11/02

I certify that the information (including, but not limited to, text, tables, and graphics) contained in the electronic file identified below by file name and submitted with this certification is the same information as that on the paper copies of these documents included with this submission.

PROPOSED LABEL		
EPA Registration #	Date Submitted to EPA	Electronic file name
89799-1	February 13, 2014	089799-00001.20140213.Cavalier 2L label notification.PDF

I certify that the statements that I have made on this form are true, accurate, and complete. I acknowledge that any knowingly false or misleading statements may be punishable by fine or imprisonment or both under applicable law.


Signature


Date

Michael Kellogg
Name (typed)

Agent
Title

Raymat Crop Science, Inc.

440 Boulder CT., Suite 300, Pleasanton, CA 94566 USA
Tel. 510-579-7685, Fax. 925-249-9989

August 27, 2013

To Whom It May Concern:

RE: Letter of Authorization

Dear Sir or Madam:

Please let this letter serve to confirm that Janelle Kay and Michael Kellogg of Pyxis Regulatory Consulting, Inc. are authorized to act as agent for Raymat Crop Science, Inc. (EPA Company Number 89799), before the U.S. Environmental Protection Agency, California Department of Pesticide Regulation Pesticide Registration Branch and other state governmental agencies in all matters regarding our pesticide registrations pursuant to the Federal Insecticide, Fungicide and Rodenticide Act ("FIFRA"), 7 U.S.C. § 136 et seq. and state law.

If you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Jibing Lin', with a horizontal line drawn underneath the signature.

Jibing Lin, Ph. D, President
Raymat Crop Science, Inc.

cc: Pyxis Regulatory Consulting, Inc.

Material Sent for Data Extraction

Reg. # 89799-1

Description: _____

☐ Material(s) Sent to Data Extraction Contractors:

☐ New Stamped Label Dated _____

☐ Notification Dated _____

☒ New CSF(s) Dated 7/24/13

☐ Other: _____

☐ Decision #: _____

☐ Other Action/Comments: _____

File this coversheet and attached materials in the jacket. It must be well organized and clipped together, NOT STAPLED. Then give the jacket with the coversheet and materials to staff in the Information Services Center (ISC) (Room S-4900). If a jacket is full or only available as an image, please file materials in a new jacket and bring it down to the (ISC). For further information please call 703-605-0716.

Reviewer: Autumn Metzger

Phone: 305-5314 Division: RD - IRB

Date: 10/22/13

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460



OFFICE OF
CHEMICAL SAFETY AND
POLLUTION PREVENTION

OCT 22 2013

Raymat Crop Science, Inc.
c/o Pyxis Regulatory Consulting, Inc.
Leanne Pruett
4110 136th St. NW
Gig Harbor, WA 98332

Subject: Adding Alternate Confidential Statement of Formulation (CSF) #1 dated
7/26/2013
Cavalier 2L
EPA Reg. No. 89799-1

Dear Ms. Pruett:

The CSF referred to above, submitted in connection with your application for registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended is **acceptable** and will be added to your file.

The current CSFs on file for this product are as follows:

- Basic CSF, dated 3/30/2013
- Alternate CSF #1, dated 7/26/2013

If you have any questions, please contact Autumn Metzger at (703) 305-5314 or metzger.autumn@epa.gov.

Regards

A handwritten signature in black ink, appearing to read "Reuben Baris", with a large, stylized flourish at the end.

Reuben Baris (Acting PM 07)
Insecticide-Rodenticide Branch
Registration Division (7505P)

10/22/2013

89799-11, Cavalier 2L

NOTE TO FILE

The alternate CSF being added was eye-balled and discussed with both Akiva for product chemistry and Jeanie for acute toxicity.

Receipt for Section 3

S: 940156

Resubmission: ☐ Yes ☒ No

Regulatory Type: Product Registration - Section 3

Fee For Service: ☐ Yes ☒ No

Application Type: Amendment

Billable: ☐ Yes ☒ No

Print Letter

Enter More Information

Tracking

Company: 89799 RAYMAT CROP SCIENCE, INC

V

Risk Manager: Registration Division, Risk Management Team 7

Product #: 89799-1 Product Name: CAVALIER 2L

Override#:

Me Too
Section3: 400-461

Me Too
Product Name: DIMILIN 2L

Application Date: 14-Aug-2013



OPP Rec'd Date: 23-Aug-2013



Front End Date: 23-Aug-2013



Risk Manager Send Date: 26-Aug-2013



FFS Due Date:

Negotiated Due Date:

OPP Target Date:

Receipt Content

Des

CSF



Fast Track: ☐

New Ingredient: ☐

Receipt Description:

View/Edit

AMENDMENT

New Ingredient

Request Date:

New Ingredient

Received Date:

Form A: ☐

Signature Date:

Form B: ☐

Signature Date:



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

August 26, 2013

OFFICE OF CHEMICAL
SAFETY
AND POLLUTION
PREVENTION

JANELLE KAY
PYXIS REGULATORY CONSULTING, INC
RAYMAT CROP SCIENCE, INC
4110 136TH ST. NW
GIG HARBOR, WA 98332-

PRODUCT NAME: CAVALIER 2L
COMPANY NAME: RAYMAT CROP SCIENCE, INC
OPP IDENTIFICATION NUMBER:
EPA FILE SYMBOL: 89799-1
EPA RECEIPT DATE: 08/23/13

SUBJECT: RECEIPT OF AMENDMENT

DEAR REGISTRANT:

The Office of Pesticide Programs has received your application for an amendment and it has passed an administrative screen for completeness.

During the initial screen we determined that the application appears to qualify for fast track review. The package will now be forwarded to the Product Manager for review to determine its acceptability for fast track status.

If you have any questions, please contact Registration Division, Risk Management Team 7, at (703) 308-6249.

Sincerely,

A handwritten signature in black ink, appearing to be "SJA" or similar, written over a horizontal line.

Front End Processing Staff
Information Services Branch
Information Technology & Resources Management Division

Fee for Service

{940156&~

This package includes the following

for Division

- ☐ New Registration
- ☐ Amendment

- ☐ AD
- ☐ BPPD
- ☐ RD

☐ Studies? ☐ Fee Waiver?

☐ volpay % Reduction: _____

Risk Mgr. 7

Receipt No.

S- 940156

EPA File Symbol/Reg. No.

89799-1

Pin-Punch Date:

8/23/2013

☒ This item is NOT subject to FFS action.

Action Code:

Parent/Child Decisions:

Requested:

Granted:

Amount Due: \$ _____

☒ *A. Dehesai 9-8-13*
Inert Cleared for Intended Use

☐ Uncleared Inert in Product

Reviewer: *[Signature]*

Date: 8/26/13

Remarks:

PYXIS REGULATORY CONSULTING, INC.

4110 136th St. NW
Gig Harbor, WA 98332

Phone: 253-853-7369
Fax: 253-853-5516
www.PyxisRC.com

August 14, 2013

COURIER DELIVERY

John Hebert (PM 7)
Document Processing Desk (**AMEND**)
Office of Pesticide Programs (7504P)
U.S. Environmental Protection Agency
Room S-4900, One Potomac Yard
2777 S. Crystal Drive
Arlington, VA 22202-4501

RE: Raymat Crop Science, Inc. – Cavalier 2L (EPA Reg. No. 89799-1)
Amendment to the Confidential Statement of Formula (CSF)

Dear Mr. Hebert,

On behalf of Raymat Crop Science, Inc., we are submitting a non-PRIA fast track amendment to add an Alternate Confidential Statement of Formula (Alt CSF #1) to the Cavalier 2L registration. The alternate CSF is in addition to the currently approved Basic CSF. Raymat is proposing to add an additional new inert ingredient to the formulation.

Neither the nominal concentration of the active ingredient or the nominal inert ingredient total has changed. Raymat believes the revision does not invalidate product-specific data for this product, and no changes to the product's labeling are required.

The following documents are submitted in support of this amendment:

1. Application for Amendment (EPA Form 8570-1)
2. Two (2) copies of the proposed CSF (Alternate Formulation #1 dated July 26, 2013)
3. Formulators Exemption Statement (EPA Form 8570-27)
4. MSDS for new inert ingredient
5. Letter of Authorization

As no data are being submitted with this amendment, nor will data need to be reviewed to approve the proposed amendment, Raymat believes this action qualifies as a Fast Track amendment and is not subject to a Pesticide Registration Service Fee.

We trust you will find this application complete. However, please feel free to contact me by email (Leanne@PyxisRC.com) or by phone at (253) 853-7369 if you have any questions or need any additional information.

Sincerely,



P. Leanne Pruett

Enclosures



United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☒ Amendment
☐ Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number Raymat Crop Science Inc. / 89799 - 1	2. EPA Product Manager John Hebert	3. Proposed Classification <input type="checkbox"/> None <input checked="" type="checkbox"/> Restricted
4. Company/Product (Name) Raymat Crop Science, Inc. / Cavalier 2L	PM# 7	
5. Name and Address of Applicant (Include ZIP Code) Raymat Crop Science, Inc. c/o Pyxis Regulatory Consulting, inc. 4110 136th St., NW Gig Harbor, WA 98332 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

<input checked="" type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Submission of an amendment to the Confidential Statement of Formula (addition of Alternate Formulation #1). As no data are being submitted with this amendment, nor will data need to be reviewed to approve the proposed amendment, Alligare, LLC believes this action qualifies as a Fast Track amendment and is not subject to a Pesticide Registration Service Fee. Should you have any questions please contact me via email at Leanne@PyxisRC.com or phone at (253) 853-7369.

Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____	
* Certification must be submitted		If "Yes" Unit Packaging wgt. 1 gallon	No. per container 4	If "Yes" Package wgt. _____	No. per container _____
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container 1 gal., 4 x 1 gal., 2.5 gal.-55 gal., bulk		5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product	
6. Manner in Which Label is Affixed to Product <input checked="" type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled			<input type="checkbox"/> Other _____		

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name P. Leanne Pruett	Title Agent	Telephone No. (Include Area Code) 253-853-7369
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received (Stamped)
2. Signature 	3. Title Agent	
4. Typed Name P. Leanne Pruett	5. Date August 14, 2013	



United States
Environmental Protection Agency
Washington, DC 20460
Formulator's Exemption Statement
(40 CFR 152.85)

Applicant's Name and Address

Raymat Crop Science, Inc.
440 Boulder Ct., Suite 300
Pleasanton, CA 94566

EPA File Symbol/Registration Number

89799 - 1

Product Name

Cavalier 2L

Date of Confidential Statement of Formula (EPA Form 8570-4)

July 26, 2013

As an authorized representative of the applicant for registration of the product identified above, I certify that:

- (1) This product contains the following active ingredient(s):

Diflubenzuron

- (2) Of these, each active ingredient listed in paragraph (4) is present solely as the result of the use of that active ingredient in the manufacturing, formulation or repackaging another product which contains that active ingredient which is registered under FIFRA Section 3, is purchased by us from another person and meets the requirements of 40 CFR section 158.50(e)(2) or (3).

- (3) Indicate by checking (A) or (B) below which paragraph applies:

- ☒ (A) An accurate Confidential Statement of Formula (EPA FORM 8570-4) for the above identified product is attached to this statement. That formula statement indicates, by company name, registration number, and product name, the source of the active ingredient(s) listed in paragraph (1).

OR

- ☐ (B) The Confidential Statement of Formula (CSF)(EPA Form 8570-4) referenced above and on file with the EPA is complete, current, an accurate and contains the information required on the current CSF.

- (4) The following active ingredients in this product qualify for the formulator's exemption.

Source

Active Ingredient	Product Name	Registration Number
Diflubenzuron	[REDACTED]	[REDACTED]
Signature	Name and Title	Date
	P. Leanne Pruett, Authorized Agent	August 14, 2013

EPA Form 8570-27 (Rev. 06-2004)

Copy 1 - EPA
Copy 2 - Applicant copy

Raymat Crop Science, Inc.

440 Boulder CT., Suite 300, Pleasanton, CA 94566 USA
Tel. 510-579-7685, Fax. 925-249-9989

Dec. 3, 2012

To Whom It May Concern:

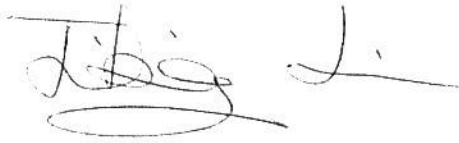
RE: Letter of Authorization

Dear Sir or Madam:

Please let this letter serve to confirm that Pyxis Regulatory Consulting, Inc. is authorized to act as agents for Raymat Crop Science, Inc. (EPA company number pending), before the U.S. Environmental Protection Agency and state governmental agencies in all matters regarding our pesticide registrations pursuant to the Federal Insecticide, Fungicide and Rodenticide Act ("FIFRA"), 7 U.S.C. § 136 et seq. and state law.

If you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jibing Lin', with a large, stylized flourish at the end.

Jibing Lin, Ph. D, President
Raymat Crop Science, Inc.

cc: Pyxis Regulatory Consulting, Inc.

Material to be added to an e-Jacket/Jacket

Reg. No. 89799-1

Description: _____

1. ☐ Placement within the e-Jacket/jacket:
- ☐ Default: (chronological, top = newest)
 - ☐ File Location: (PDF page number, i.e., "before page 45")
- _____
- _____

2. ☐ Send to Data Extraction contractors this material:

- ☐ Newly stamped accepted label
- ☒ Notification
- ☐ New CSF
- ☐ Other: _____

3. Attach this coversheet to the top of the material or jacket. It must be well organized and clipped together, NOT STAPLED. Then give the material with this coversheet to staff in the Information Services Center (Room S-4900).

Reviewer's Name: Sam Samuel

Phone: 703 305-5469 Division: RD

Date: Sept. 10, 2013



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SEP 10 2013

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Mr. Michael Kellogg
Raymat Crop Science, Inc.
c/o Pyxis Regulatory Consulting, Inc.
4110 136th St., NW
Gig Harbor, WA 98332

Subject: Minor Label Changes in Order to Facilitate Registration in California

Dear Mr. Kellogg:

The Agency is in receipt of your Application(s) for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 dated August 22, 2013 for:

EPA Registration 89799-1

Cavalier 2L

The Registration Division (RD) has conducted a review of this request of applicability under PRN 98-10 and finds that the label changes(s) requested falls within the scope of PRN 98-10. The label has been date-stamped "Notification" and will be placed in our records.

If you have any questions, call me at 703 305-5409 or electronically at daniel.dani@epa.gov.

Sincerely,

A handwritten signature in cursive script, appearing to read "Dani Daniel".

Dani Daniel
Registration Division (7504P)
Insecticide/Rodenticide Branch



United States
Environmental Protection Agency
Washington, DC 20460

SEP 10 2013

☐ Registration
☐ Amendment
☒ Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 89799-1	2. EPA Product Manager J. Hebert	3. Proposed Classification <input type="checkbox"/> None <input checked="" type="checkbox"/> Restricted
4. Company/Product (Name) Raymat Crop Science, Inc. / Cavalier 2L	PM# 7	
5. Name and Address of Applicant (Include ZIP Code) Raymat Crop Science, Inc. c/o Pyxis Regulatory Consulting, Inc. 4110 136th St. NW Gig Harbor, WA 98332 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

<input type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Notification of minor label revisions per PR Notice 98-10 to facilitate registration in the state of California. This notification is consistent with the provisions of PR Notice 98-10 and EPA regulations at 40 CFR 152.46, and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make any false statement to EPA. I further understand that if this notification is not consistent with the terms of PR Notice 98-10 and 40 CFR 152.46, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA.

Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Metal	
				<input type="checkbox"/> Plastic	
				<input type="checkbox"/> Glass	
				<input type="checkbox"/> Paper	
				<input type="checkbox"/> Other (Specify) _____	
* Certification must be submitted		If "Yes" Unit Packaging wgt.	No. per container	If "Yes" Package wgt	No. per container
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container 1 gallon, 2.5 gallon, 55 gallon, bulk		5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product	
3. Manner in Which Label is Affixed to Product <input checked="" type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		<input type="checkbox"/> Other _____			

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Michael Kellogg	Title Agent	Telephone No. (Include Area Code) (253) 853-7359
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received (Stamped)
Signature 	3. Title Agent	
Typed Name Michael Kellogg	5. Date 8/22/13	

PYXIS REGULATORY CONSULTING, INC.

4110 136th St. NW
Gig Harbor, WA 98332

Phone: 253-853-7369
Fax: 253-853-5516
www.PyxisRC.com

August 22, 2013

COURIER DELIVERY

John Hebert (PM 7)
Document Processing Desk (**NOTIF**)
Office of Pesticide Programs (7504P)
U.S. Environmental Protection Agency
Room S-4900, One Potomac Yard
2777 S. Crystal Drive
Arlington, VA 22202-4501

RE: Raymat Crop Science, Inc. – Cavalier 2L (EPA Reg. No. 89799-1)
Notification of Minor Label Revisions per PRN 98-10 to Facilitate Registration in the State of California

Dear Mr. Hebert,

On behalf of Raymat Crop Science, Inc., please find the enclosed notification of minor label revisions to facilitate registration in the state of California. Changes made to the enclosed label include:

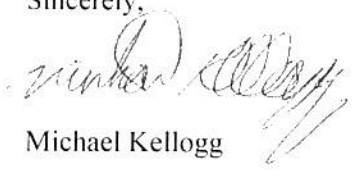
- P. 4, 5 – Added the restriction “Do not apply via chemigation in the State of California”
- P. 19 – Under LIVESTOCK AND POULTRY PREMISES, added “(Except California)” after “Carrion Beetle, Darkling Beetle, Hide Beetle”
- P. 20 – Added “Do not apply this product for control of Carrion Beetle, Darkling Beetle or Hide Beetle in the State of California”

In support of this notification submission, we submit the following documents:

1. Completed Application for Registration (EPA Form 8570-1)
2. One (1) copy of the Cavalier 2L labeling with changes tracked
3. One (1) copy of the Cavalier 2L labeling with changes incorporated
4. Certification with Respect to Label Integrity
5. One (1) copy of the Cavalier 2L labeling on CD
6. Letter of Authorization

Please feel free to contact me by phone (253) 853-7369 or by email at Mike@PyxisRC.com if you have any questions or need any additional information.

Sincerely,


Michael Kellogg

Enclosures

ORCHARD CROPS

ORANGE, GRAPEFRUIT, TANGERINE, PUMMELO and their hybrids

Application Instructions

Cavalier 2L can be applied aerially, in 5 to 20 gallons (total volume) per acre, or by ground application, in 50 to 100 gallons (total volume) per acre. Make sure that application volume is sufficient for uniform coverage. Optimum results on the largest range of pests will be gained from applying Cavalier 2L when new flush is emerging and/or present, however product can be applied to citrus at any time of the year.

Application Rate

For all citrus pests, apply Cavalier 2L at a rate of 20 fl. oz. per acre.

Asian Citrus Psyllid (*Diaphonia citri*)

Make application when Asian Citrus Psyllid (ACP) oviposition is seen or expected, when early feather leaf flush is present, or when leaf distortion is evident.

To maximize coverage of the entire leaf flush, make split application by spraying half of volume of product (10 fl. oz. per acre) as indicated above (oviposition seen or expected, early-feather leaf flush is present, leaf distortion is evident), and the other half (10 fl. oz. per acre) to protect new growth flush, as needed. Wait at least 90 days for subsequent applications of Cavalier 2L.

Citrus Rust Mite (*Phyllocoptruta oleivora*)

Make application when Citrus rust mites (CRM) are first observed on fruit or leaves.

For CRM control programs, rotate to an insecticide with a different mode of action before applying Cavalier 2L. Activity of Cavalier 2L on CRM is on immature stages, with most activity on late-instar CRM and may not reach full effect for up to 14 days after application.

Lepidopterous Miners: Citrus Leafminer (*Phyllocnistis citrella*)

Make application when Citrus Leafminer (CLM) oviposition is seen or expected, when leaf flush is present and oldest leaf is expanded by one-quarter, or when leaf mining is evident.

To maximize coverage of the entire leaf flush, make split application by spraying half of volume of product (10 fl. oz. per acre) as indicated above (oviposition seen or expected, leaf flush is present, leaf distortion is evident), and the other half (10 fl. oz. per acre) to protect new growth flush, as needed. Wait at least 90 days for subsequent applications of Cavalier 2L.

Lepidopterous Miners: Citrus Peel Miner (*Marmara spp.*)

Make application when citrus peel surfaces show Citrus peel miner (CPM) oviposition, or when expected.

To maximize coverage of the fruit surface, make split application by spraying half volume of product (10 fl. oz. per acre) when CPM oviposition begins, and the other half (10 fl. oz. per acre) to protect expanded fruit growth, as needed. Wait at least 90 days for subsequent applications of Cavalier 2L. Protection from CPM larvae will lessen over time as fruit expands and new, unprotected tissue develops, but may last up to several weeks.

Citrus Root Weevil Complex: West Indian Sugarcane Rootstalk Borer Weevil (*Diaprepes abbreviatus*), Southern Blue-Green Citrus Root Weevil (*Pachnaeus litus*), Blue-Green Citrus Weevil (*Pachnaeus opalus*) Fuller Rose Beetle (*Asynonychus godmani*), Little Leaf Notcher (*Artipus flondanus*)

Make application to citrus leaf flush when Citrus root weevils (CRW) are seen, when oldest leaf is expanded by one-half, or when recent leaf feeding is evident.

Katydid, Grasshoppers:

Make application when katydids or grasshoppers are seen, or recent feeding on leaves or fruit is noticed.

To maximize coverage and protection of leaves and fruit, make split application by spraying half of volume of product (10 fl. oz. per acre) as indicated above (katydids or grasshoppers are seen, recent feeding on leaves or fruit), and the other half (10 fl. oz. per acre) to protect new growth, as needed. Wait at least 90 days for subsequent applications of Cavalier 2L.

Adjuvants - To enhance spray coverage, add a petroleum spray oil, such as FC435-66. Addition of a spray oil also aids knockdown of existing populations (CRM), penetration or absorption of Cavalier 2L into immature stages of insects², mines³, eggs^{1,3,4,5,6,7}, larvae³, pupae³, nymphs^{1,6,7} and adults^{1,6,7}. A spray oil improves Cavalier 2L's activity, which is to prevent eggs from hatching, larvae or nymphs from molting, moths from emerging from pupae, and limiting eggs laid or able to hatch by adult females when exposed to Cavalier 2L through contact, ingestion and/or absorption. Spray oil also limits egg mass attachment to citrus leaf surface³.

- | | |
|-------------------------------|-----------------------|
| 1 – Asian Citrus Psyllid | 2 – Citrus Rust Mite |
| 3 – Citrus Leafminer | 4 – Citrus Peel Miner |
| 5 – Citrus Root Weevil Comple | 6 – Katydid |
| 7 - Grasshopper | |

IMPORTANT:

- Application of Cavalier 2L when new citrus flush has emerged will give best control of the most pests, however it can be applied anytime during the year
- **Ground Application:** Do not apply within 25 feet of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries. **In the State of Florida**, do not apply within 100 feet of estuarine/marine bodies of water. Spray last three rows windward of surface water using nozzles on one side only, with spray directed away from surface water. Avoid spray going over tops of trees by adjusting or turning off top nozzles. Shut off nozzles on one side away from the grove when spraying the outside row. Shut off nozzles when turning at ends of rows and passing tree gaps in rows.
- **Aerial Application:** Do not apply within 150 feet of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries. **In the State of Florida**, do not apply within 1000 feet of estuarine/marine bodies of water.
- Maximum amount of product per acre is 60 fl. oz. per year
- Pre-harvest interval is 21 days.
- Wait a minimum of 90 days for repeat application (except when making split applications, as per instructions, above)
- Cavalier 2L affects existing ACP, CLM and citrus root weevil populations by diminishing their reproductive ability.
- Cavalier 2L does not control the following insect growth stages:
 - Adult Asian citrus psyllid, citrus root weevils, katydids or grasshoppers
 - Adult Citrus Rust mite or Citrus rust mite eggs
 - Citrus Leafminer or Citrus peel miner moths

PEAR

Application Instructions

Apply Cavalier 2L in a minimum of 80 to 400 gallons of water per acre. Make sure that application volume is sufficient for uniform coverage.

Application Rate

Pear Psylla , Pear Rust Mite (pre-bloom) – apply 40 – 48 fl. oz. per acre

Make application any time from delayed dormant period to white bud, or 'popcorn,' stage of growth, and during the deposition of pear psylla eggs so that Cavalier 2L contacts eggs and/or 1st and 2nd instar nymphs. Make sure tree is completely and uniformly covered with spray for optimum insect control.

Additives: During delayed dormant period, apply Cavalier 2L with 4 to 6 gallons per acre of a horticultural mineral oil. When applying during other growth periods, through the white bud, or 'popcorn,' stage, apply Cavalier 2L with 0.25% horticultural oil (maximum of 1 gallon horticultural oil per acre). Additionally, coverage can be enhanced with the use of a surfactant (follow surfactant label instructions).

Codling Moth, suppression of Pear Psylla (post bloom) – apply 12 to 16 fl. oz. per acre

Make application as soon as possible after first codling moths are observed or caught (biofix), or about 50-75 degree days after biofix. Cavalier 2L prohibits hatching of codling moth eggs, and must be applied to trees before eggs are laid, so that laid eggs are deposited on treated surfaces. Make sure that entire tree surface, including fruit and foliage is treated with Cavalier 2L. If codling moth pressure is light, or if pear trees are small, use lower rate. Timing of application is extremely important. Timing can be determined by local fruit specialist or pest control consultant, by employing the use of pheromone traps. Typically the optimum time for application will occur around 10 – 14 days prior to application of an organophosphate insecticide, or around late petal fall.

A second application of Cavalier 2L should be applied 14 – 18 days after initial application.

If necessary (prior to egg laying of 2nd generation, as determined by timing indicated above, for 1st generation), a third and fourth application can be made. If the use of pheromone traps are not employed, the third application should be made 21-30 days after the 2nd, or 1000 degree days after biofix. The fourth application should be made 21-30 days after the third.

Tank Mixes: For more effective control of moderate to heavy codling moth infestations, when treating large trees, or for optimum timing of Cavalier 2L spray (to save a trip through the orchard), Cavalier 2L can be combined with organophosphate insecticides. Apply at the normal time for the first organophosphate cover spray, which occurs at the beginning of egg hatch (250 degree days following biofix for 1st generation, or 1250 degree days following biofix for 2nd generation). Application of this tank mixture can be repeated for 2nd and 2rd generations of codling moth, or Cavalier 2L alone can be used prior to egg laying. For late season control, oil should not be used in the tank mix. When codling moth populations are low, an organophosphate / Cavalier 2L mixture could control an entire generation with 1 application. For heavy populations, this combination of Cavalier 2L/organophosphate may not control the entire generation with one spray. In that case apply a second spray 14 – 18 days later of Cavalier 2L alone or in combination with an organophosphate, so that eggs laid after insecticide application will be residually controlled. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

Leafminer – apply 8 to 16 fl. oz. per acre

For control of leafminer larvae and eggs, make application during or just before eggs are laid. Fruit specialist or local pest control consultant can advise about timing for control of 1st or 2nd generations of leafminer. Cavalier 2L can also be applied for control of later generations. For control through early sap feeding stage, Cavalier 2L should be applied prior to egg laying. For control of leafminer larvae throughout the sap feeding stage, make sure that foliage is completely covered.

IMPORTANT

- Using oil with Cavalier 2L could cause certain pear varieties to display injury. Local fruit tree specialists can advise on compatibility of oil mixtures.
- Do not use oil with Cavalier 2L for late season (3rd and 4th) applications.
- Maximum number of applications per year is 4
- Maximum amount of product per season is 64 fl. oz. per acre
- Pre harvest interval is 14 days.

STONEFRUIT (excluding cherries)

Includes: Apricot, Nectarine, Peach, Plum, Prune

Application Instructions

Apply Cavalier 2L by ground in a minimum of 50 gallons of water for trees up to 10 feet tall and a minimum of 100 gallons of water for larger trees. For optimal results, use enough water for sufficient coverage and make sure that canopy is evenly and thoroughly covered.

Application Rate

Peach Twig Borer: apply 12 – 16 fl. oz. per acre (use higher rate for orchard with a history of heavy infestations)

Dormant / delayed dormant application: apply with a narrow range oil (4 to 6 gallons per acre or 1.5 to 2.0 gallons per 100 gallons spray volume in a dilute spray).

Bloom application: Application can be made with a vegetable oil (1 qt. per acre), with application starting at early bloom.

Leafroller (Filbert, Oblique Banded, Omniverous, Variegated), Moth (Oriental Fruit, Winter), Fall Webworm, Walnut Caterpillar: apply 8 – 16 fl. oz. per acre.

Make application when insect larvae are first observed. The higher use rate will give longer residual control. It should also be used if foliage is heavy or dense, if pest infestations are high, or if trees are larger or crop load is low.

Grasshoppers, Katyids (for use in **Peach Orchards in GA ONLY**): Apply 2 fl. oz. per acre

Make application to peach orchards or surrounding vegetation when immature insects are first observed. The higher use rate should be used if foliage is heavy or dense, if pest infestations are high, if trees are larger, or for longer residual control. Larvae and nymphs could take up to 5 to 7 days following application to show visible effects, due to the distinctive mode of action of Cavalier 2L.

Cavalier 2L will not control adult grasshoppers. If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper populations soon enough to minimize extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statement, directions for use, rates and timings, and other restrictions.

IMPORTANT:

- Maximum amount of product per year is 32 fl. oz. per acre (16 fl. oz. when applied to grasshoppers and katydids in peach orchards in GA only)
- Maximum amount of applications per year is 2 (or when applied to grasshoppers or katydids in peach orchards in GA only, as needed, up to application of 16 fl. oz per acre)
- Wait a minimum of 21 days between Cavalier 2L applications
- Cavalier 2L is not to be applied to stonefruit after petal fall (with the exception of applications to grasshoppers or katydids in peach orchards in GA only)
- Preharvest interval for use on grasshoppers or katydids in peach orchards in GA is 14 days.

TREE NUTS GROUP

(includes Almond, Beech nut, Brazil nut, Butternut, Chestnut, Chinquapin, Filbert (hazelnut), Hickory nut, Macadamia nut (bush nut), Pecan, Pistachio, Walnut (Black and English))

Application Instructions

Apply Cavalier 2L by ground in a minimum of 50 gallons of water for trees up to 10 feet tall and a minimum of 100 – 300 gallons of water for larger trees. For optimal results, use enough water for sufficient coverage and make sure that canopy is evenly and thoroughly covered.

Application Rate

Filbert Worm: apply 12 – 16 fl. oz. per acre

Apply Cavalier 2L before eggs are laid on treated foliage, or when moths first emerge from cocoon – if using pheromone detection traps, 2 to 3 days after first moth catch [mating takes place soon after emergence and egg laying begins the following day]. Make sure that tree and foliage coverage is uniform for best control. Use lower rate if trees are small or worm pressure is low. Use higher rate if trees are larger, or worm pressure is moderate to high. If necessary (continuing high moth pressure), a subsequent application of Cavalier 2L should be made.

Hickory Shuckworm: apply 8 – 16 fl. oz. per acre

Split Application – for optimum control, apply 4 to 8 fl. oz. Cavalier 2L when larvae begin to feed or when hickory shuckworm moth emerges; make second 4 to 8 fl. oz. application two weeks later.

Cavalier 2L can also be applied at half-shell hardening, with additional applications 21 days later, up to shuck split, or while heavy insect infestations are present. Use the higher rate on heavy, dense foliage, on larger trees or low crop load, or under higher pest infestations.

Codling Moth– apply 16 fl. oz. per acre

For optimum control, apply prior to egg laying. Apply a full coverage spray to orchard so that eggs are laid on a surface that is treated with Cavalier 2L.

Apply when first moths hatch (determine by moth flight or pheromone traps). Following application should be made 21 days later. This timing is appropriate for first or second generation (brood).

Tank Mixing – Cavalier 2L can be tank mixed with an organophosphate insecticide at its lowest label rate to control extended populations of codling moth because of variations in emergence time due to temperature fluctuations or overwintering. Application should occur at normal timeframe for an organophosphate insecticide. Additionally, if Cavalier 2L is not initially applied prior to egg laying, then tank mixing with an organophosphate insecticide as indicated above will enhance control. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

Peach Twig Borer – apply 12 – 16 fl. oz. per acre (use higher rate for orchards with a history of heavy infestations)

Dormant / delayed dormant application: apply with a narrow range oil (4 to 6 gallons per acre or 1.5 to 2.0 gallons per 100 gallons spray volume in a dilute spray).

Bloom application: Application can be made with a vegetable oil (1 qt. per acre), with application starting at early bloom.

Spring Flight ('May Spray') or Summer Flight – Apply Cavalier 2L at initial flight activity (as determined by pheromone traps).

Pecan Nut Case-Bearer: apply 8 – 16 fl. oz. per acre

Apply Cavalier 2L as a split application as indicated:

- For optimum control and best nut set, apply first application of 4 – 8 fl. oz. at bud break and second application 14 days later [in southeastern U. S., bud break would typically occur in mid-April]
- For control of adult generations and to target egg hatch, make first application of 4 – 8 fl. oz. 8 to 15 days following biofix (threshold is reached when 5 moths are captured in 3 pheromone traps in a 7 day period)

Local extension service or university experts may have different or additional recommendations regarding Cavalier 2L application. Consult them prior to use. Use the higher rate on heavy, dense foliage, on larger trees or low crop load, or under higher pest infestations.

Pecan Weevil (suppression): apply 8 – 16 fl. oz. per acre

Use the higher rate for moderate to heavy infestations, or if weevils are attacking crop.

Leafroller (Filbert, Oblique Banded, Omniverous, Variegated), Moth (Oriental Fruit, Winter), Fall Webworm, Omniverous Leaf-tier, Caterpillar (Redhumped, Walnut): apply 8 – 16 fl. oz. per acre

Make application as soon as larval infestations are detected. Use the higher rate on heavy, dense foliage, on larger trees or low crop load, or under higher pest infestations.

Tent Caterpillar (for use in almonds, pecans, pistachios and walnuts (black and English)).

Apply 8 – 16 fl. oz. per acre

Make application as soon as larval infestations are detected. Use the higher rate on heavy, dense foliage, on larger trees or low crop load, or under higher pest infestations.

IMPORTANT

- Pre-harvest interval is 28 days
- Maximum amount of product per growing season is 64 fl. oz. per acre
- Maximum amount of applications per year is 4 (3 for walnuts)
- If four applications are made to tree nuts, the timing should correspond to:
 - Dormant to pre-bud swell
 - Bloom to petal fall
 - Flowers/leaves/immature nut fruit formation
 - Hull split

NON-CROP USES

LIVESTOCK AND POULTRY PREMISES

Including barns, dairies, equine facilities, farms, farm buildings, feedlots, poultry houses and other production facilities. Cavalier 2L application can be made to feed troughs, feed bunks, fence lines of holding pens, hay bale feeders, water troughs and waste retention ponds (marginal areas of), and Cavalier 2L can control insects on/around bedding material, cage frames, ceilings, feed muck/spoilage, floors, litter, manure, manure/straw mixtures, posts, spoiled organic refuse, stale/waste feed and walls / wall footings.

Application Instructions and Rate

Carrion Beetle, Darkling Beetle, Hide Beetle:

Apply 12 fl. oz. Cavalier 2L in 2 to 20 gallons of water per 1000 ft²

Broadcast – Cavalier 2L can be applied as a broadcast spray to the whole facility, including the following areas: walls, posts and cage frames (at least 1 foot up from floor); cracks and crevices around insulation; litter following de-caking (making sure to thoroughly treat areas under water and feed lines). Make sure spray volume (which will be dependent on litter depth) is sufficient to completely and uniformly wet litter and other surfaces.

Banded Application – Cavalier 2L can be applied only where pests congregate, including along perimeter walls and side and end walks, and under water and feed lines. Make sure spray volume (which will be dependent on litter depth) is sufficient to completely and uniformly wet litter and other surfaces, in a 2-4 foot wide band under, around and next to target areas. If lower sections of walls, posts and cage frames are treated, make sure to apply product at least 1 foot up from floor.

Flies (including House, Stable, Face, Horn)

Broadcast - Apply 12 fl. oz. Cavalier 2L in 2 to 20 gallons of water per 1000 ft²

Cavalier 2L can be applied as a broadcast spray to the whole facility, including the following areas: walls, posts and cage frames (at least 1 foot up from floor); cracks and crevices around insulation; litter following de-caking (making sure to thoroughly treat moist areas and areas under water and feed lines). Make sure spray

volume (which will be dependent on litter depth) is sufficient to completely and uniformly wet litter and other surfaces.

Spot Treatment – Apply 5 fl. oz. Cavalier 2L in 10 gallons of water

Make a directed spray application when flies first appear. 1 quart of spray solution should be applied to 10 ft² of surface (10 gallons spray solution treat 400 ft²). Repeat applications can be made when fly numbers begin to increase – usually within 14 to 21 days.

IMPORTANT

- Application is not to be made directly to livestock or poultry
- Feed or water is not to be contaminated by application of Cavalier 2L; exposed feed or water is to be covered or removed from treatment area.
- Cavalier 2L provides extended control of eggs and developing larvae, but not pupal or adult stages of insects; contact or ingestion of Cavalier 2L by adults will adversely affect number of and viability of eggs.
- If a large population of adult insects is present, applying a knockdown insecticide (either alone or tank mixed with Cavalier 2L) is recommended for quick decrease of population. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.
- If controlling insects around hay feeding sites, make product application around entire soil surface where livestock activity mixes the waste hay and manure

GRASSLAND

For control in grassland, including rangeland, pastures, improved pastures and similar areas used for production of native, domesticated forage grasses for harvest for livestock primarily for grazing or mechanical harvest, grasses/forages/cellulosic crops grown for biofuel, biomass or bioenergy production, including switchgrass, miscanthus spp, etc.

Application Instructions

Cavalier 2L may be applied aerially (high or low volume application) in 2 to 5 gallons water per acre, or by ground application (low or high volume) in 2 to 30 gallons of water per acre. For rangeland ULV (aerial or ground), apply in a minimum of 12 fl. oz. total volume per acre.

Make sure that target crop is completely covered.

Adjuvants and Additives: For aerial and ULV application, especially when high air temperature or low humidity favor evaporation, add a product that retards evaporation and drift to the spray mixture. If this product is oil-based, mix 1 part oil to at least 2 parts water.

Application Rate

2 fl. oz. per acre

Horn Fly, Face Fly

Make application to cow manure patties. Cavalier 2L will provide at least 14 days of control of flies emerging from cow manure.

Fall Armyworm, Striped Grass Looper, other Lepidopteran foliage feeding caterpillars

Make application while caterpillar larvae are small (less than ½ inch long, prior to reaching fourth instar growth stage), and at first sign of hatch out. Populations will be decreased once larvae consume Cavalier 2L and undergo molting.

Grasshopper, Mormon Cricket

- Make one application at 1 to 2 fl. oz. per acre on grasshoppers or Mormon crickets at early instar growth stages (i.e., 2nd through 4th instar nymphal stages). A second application, at 0.5 to 1 fl. oz. per acre can be made 14 to 21 days after first application. For application on pastureland, use higher use rate.

- For RAAT (Reduced Area and Agent Treatment*) application on early instars in rangeland only, apply 0.75 to 1 fl. oz. per acre. Use lower rate, and skip up to 50% of the infested area (i.e., for every 100 feet treated, skip the next 100 ft. swath) if most of infestation is at early instar growth stage, vegetation is sparse, and topography is uniform. Use higher rate and 100% coverage if most of the infestation is at a late instar growth stage, vegetation is dense, terrain is rough and/or application is being made when temperature is high. A second application, at 0.5 to 1 fl. oz. per acre can be made 14 to 21 days after first application.

* A RAAT application is a grasshopper IPM program that takes advantage of the grasshopper's natural tendency to move as they feed. As grasshoppers move from untreated to treated areas and eat foliage treated with Cavalier 2L, they are killed once molting occurs. The rate of Cavalier 2L is lowered and applied in alternating treated and untreated strips. A RAAT treatment reduces application cost, giving ranchers a cost effective way to control grasshoppers or Mormon crickets on their rangeland, depending on severity of infestation, insect growth stage and density of vegetation.

If treated areas have a dense canopy, if nymphs have passed the third instar growth stage, and/or if temperature and climate encourage insect survival and proliferation, use higher rates of Cavalier 2L. Cavalier 2L should be applied after egg hatch, through early instar growth stages, as it will not control the adult stages of these insects. Cavalier 2L's residual activity will continue to control larvae later in the season.

Tank Mix: Apply Cavalier 2L tank mixed with a knockdown insecticide or grasshopper adulticide if adults are present (due to overwintering or early hatching) to reduce extensive foliage feeding. Make sure tank mix partners are compatible prior to mixing and adding to main spray tank. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

IMPORTANT

- Maximum amount of product per cutting is 2 fl. oz. per acre
- Maximum amount of product per year is 6 fl. oz. per acre
- Wait at least 1 day following Cavalier 2L application prior to cutting grass.
- Apply when possibility of drift to sensitive areas (residential, non-target crops, water bodies, threatened or endangered species habitat) is small.
- For low volume and ULV applications, continue constant agitation while mixing and applying Cavalier 2L, and make sure the appropriate concentration of Cavalier 2L is mixed in the boom before application begins.
- Due to the distinctive mode of action of Cavalier 2L, it could take up to 5 to 7 days following application to show first signs of control (populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting)
- In response to treatment with Cavalier 2L, Mormon crickets could exhibit structural deformities (such as malformed abdominal segments, twisted antennae, wrinkled wings, missing posterior legs, hernias, hemolymph exudation). This could result in behaviors (such as inability to fly, limited jumps and unsteady landings, slower movement, reduction in feeding) which cause the nymphs or adults to be more vulnerable to predators (birds, mammals or other insects)

NON-CROP AREAS

Including field border, fence rows, roadsides, farmsteads, ditchbanks, wasteland, Conservation Reserve Program (CRP) land

Application Instructions

Cavalier 2L may be applied aerially (high or low volume application) in 2 to 5 gallons water per acre, or by ground application (low or high volume) in 2 to 30 gallons of water per acre. For additional Application Instructions, see Grassland Directions for Use.

Application Rate

2 fl. oz. per acre

Grasshopper, Mormon Cricket

Insects can be managed in their breeding areas prior to migration into cropland or other undesirable areas with application of Cavalier 2L.

See Grassland Directions for Use for additional instructions and application information.

Fall Armyworm, Striped Grass Looper and other Lepidopteran foliage-feeding caterpillars

Make application while caterpillar larvae are small (less than ½ inch long, prior to reaching fourth instar growth stage), and at first sign of hatch out. Populations will be decreased once larvae consume Cavalier 2L and undergo molting.

IMPORTANT

- Maximum amount of product per application is 2 fl. oz. per acre
- Maximum amount of product applied per year is 6 fl. oz. per acre

See Grassland Directions for Use for other restrictions and comments

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

PESTICIDE STORAGE: Store product in its original labeled container only.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER HANDLING

Plastic containers: Nonrefillable container. Do not reuse or refill this container. Triple rinse or pressure rinse (or equivalent) promptly after emptying.

Triple rinse as follows: For containers small enough to shake: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. For containers too large to shake: Empty remaining contents into a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the rinsate into a mix tank and store for later use or disposal. Repeat the procedure two more times.

Pressure rinse as follows: Empty the remaining contents into a mix tank and continue to drain for 10 seconds after the flow continues to drip. Hold container upside down over mix tank to collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Then offer container for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Recycling: Once cleaned, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. To find the nearest site, contact your chemical dealer or manufacturer or contact Ag Container Recycling Council (ACRC) at 1-877-952-2272 (toll free) or www.acrecycle.org.

LIMITED WARRANTY

Raymat Crop Science, Inc. warrants only that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the label, under average use conditions, when used strictly in accordance with the label and subject to the Risks of Using This product as described above. To the extent consistent with applicable law AND AS SET FORTH ABOVE, RAYMAT CROP SCIENCES, INC. MAKES NO OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED. No agent or representative of Raymat Crop Sciences or Seller is authorized to make or create any other express or implied warranty.

LIMITATION OF LIABILITY

To the fullest extent allowed by law, Raymat Crop Sciences, Inc., or Seller is not liable for any incidental, consequential, indirect or special damages resulting from the use or handling of this product. The limitation includes, but is not limited to, loss of yield on all or any portion of the treated acreage, increased care, treatment or other expenses required to take the crop to harvest, increased finance charges or altered finance ratings, emotional or mental distress and/or exemplary damages. TO THE FULLEST EXTENT ALLOWED BY

LAW, THE EXCLUSIVE REMEDY OF THE BUYER, AND THE EXCLUSIVE MAXIMUM LIABILITY OF RAYMAT CROP SCIENCES, INC. OR SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT SHALL BE THE RETURN OF THE PURCHASE PRICE OF THIS PRODUCT OR, AT THE ELECTION OF RAYMAT CROP SCIENCES, INC OR SELLER, THE REPLACEMENT OF THE PRODUCT.

PROMPT NOTICE OF CLAIM

To the extent consistent with applicable law allowing such requirements Raymat Crop Science, Inc. must be provided notice as soon as Buyer has reason to believe it may have a claim, but in no event later than twenty-one days from the date of application, whichever is later, so that an immediate inspection of the affected property and growing crops can be made.

To the extent consistent with applicable law if Buyer does not notify Raymat Crop Sciences, LLC of any claims in such period, it shall be barred from obtaining any remedy.

NO AMENDMENTS

Raymat Crop Sciences, Inc. and Seller offer this product, and Buyer accepts it, subject to the foregoing Disclaimer, Risks of Using This product, Limited Warranty and Limitation of Liability, which may not be modified by any oral or written agreement.

[EPA approval date]

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April 11, 2013

John Hebert (PM7)
Document Processing Desk (REGFEE)
Office of Pesticide Programs (7504P)
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2777 S. Crystal Drive
Arlington, VA 22202-4501

RE: Raymat Crop Science, Inc. – Cavalier 2L (EPA Reg. No. 89799- XX)
Application for New Pesticide Registration

Dear Mr. Hebert,

On behalf of Raymat Crop Science, Inc. I am submitting an application for registration of Cavalier 2L, an end-use product containing diflufenzuron as the active ingredient. In support of this application, we submit the following documents:

1. Three (3) copies of EPA Form 8570-I (Application for Registration)
2. Copy of PRIA payment receipt
3. Three (3) copies of the Basic Confidential Statement of Formula (EPA Form 8570-4)
4. Three (3) copies of the proposed labeling
5. One copy of the proposed label on CD
6. Certification with respect to Label Integrity
7. Formulators Exemption Statement (EPA Form 8570-27)
8. Certification with Respect to Citation of Data (EPA Form 8570-34)
9. Agency Internal Use Copy of the Data Matrix (EPA Form 8570-35)
10. Public File Copy of the Data Matrix (EPA Form 8570-35)
11. Letter of Authorization from Summit Agro North America
12. Three (3) copies of the Product Specific Data

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49102902

Volume I	830.1550, 830.1600, 830.1650, 830.1670, 830.1750, 830.1800	Pruett, L. (2013). Cavalier 2L Product Properties Report [Contains Description of Materials Used to Produce the Product, Description of the Formulation Process, Discussion of Formation of Impurities, Certified Limits and Enforcement Analytical Method] <i>Contains Confidential Business Information.</i>
Volume II	830.6302, 830.6303, 830.6304, 830.6314, 830.6315, 830.7000, 830.7100, 830.7300	Leopard, B. Physical and Chemical Characteristics of Cavalier 2L [Contains Color, Physical State, Odor, Oxidation / Reduction, Flammability, pH, Viscosity, Density]

Raymat Crop Science, Inc. believes its product, Cavalier 2L, is substantially similar to a currently registered product (EPA Reg. No. 400-461). Raymat believes this application falls under Category R300 (44: New product -- Me-Too, Fast Track -- 4 month timeline, \$1434.00 PRIA fee) as only product chemistry data are being submitted to support the application for registration and the cite-all option under the selective method is being used to support product specific acute toxicity data requirements. In addition, the technical source of active ingredient is based on a registered source of supply and therefore, Cavalier 2L qualifies for Formulators Exemption for diflufenzuron generic data requirements.

If you have any questions or concerns regarding this application for registration, or require additional information, please contact me at (253) 853-7369 or Leanne@PyxisRC.com.

Best Regards,

A handwritten signature in black ink, appearing to read "P. Leanne Pruett", with a stylized flourish at the end.

P. Leanne Pruett
Pyxis Regulatory Consulting

Enclosures

cc: Raymat Crop Science, Inc.



United States
Environmental Protection Agency
Washington, DC 20460

☒ Registration
☐ Amendment
☐ Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number Raymat Crop Science Inc. / 89799 - XX	2. EPA Product Manager John Hebert	3. Proposed Classification <input type="checkbox"/> None <input checked="" type="checkbox"/> Restricted
4. Company/Product (Name) Raymat Crop Science, Inc. / Cavalier 2L	PM# 7	
5. Name and Address of Applicant (Include ZIP Code) Raymat Crop Science, Inc. c/o Pyxis Regulatory Consulting, inc. 4110 136th St., NW Gig Harbor, WA 98332 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. 400 - 461 Product Name Dimilin 2L	

Section - II

<input type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input checked="" type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

This application falls under Category R300 as only product chemistry data are being submitted and the cite-all method is being used to support product specific acute toxicity data requirements (this product is formulator's exempt for generic data requirements). The PRIA fee due, which has been paid, is \$1434 and the decision timeline is 4 months.

Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify: _____)	
* Certification must be submitted		If "Yes" Unit Packaging wgt. 1 gallon	No. per container 4	If "Yes" Package wgt	No. per container
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container 1 gal., 4 x 1 gal., 2.5 gal., 55 gal., bulk		5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product	
6. Manner in Which Label is Affixed to Product <input checked="" type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		<input type="checkbox"/> Other _____			

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name P. Leanne Pruett	Title Agent	Telephone No. (Include Area Code) 253-853-7369
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		8. Date Application Received (Stamped)
2. Signature 	3. Title Agent	
4. Typed Name P. Leanne Pruett	5. Date April 11, 2013	

PRIA 3 – 21 Day Content Screen Review Worksheet

(EPA/OPP Use Only)

September 2012

21 Day Screen Start Date: 4/15/13

Experts In-Processing Signature: MP Date 4/15/13

Fee Paid: Yes ☒ No ☐

Division management contacted on issues No ☐ Yes ☐ Date _____

EPA Reg. Number: <u>39749-A</u>		EPA Receipt Date: <u>4/15/13</u>				
Items for Review			Yes	No	N/A*	
1	Application Form (EPA Form 8570-1) signed & complete including package type			X		
2	Confidential Statement of Formula all boxes completed, form signed, and dated (EPA Form 8570-4)			X		
	a) All <u>inerts</u> , including fragrances, approved for the proposed uses (see Footnote A)	yes	no			
		X				
3	Certification with Respect to Citation of Data (EPA Form 8570-34) completed and signed (N/A if 100% repack)			X		
	Certificate and data matrix consistent			X		
	If applicant is relying on data that are compensable, is the offer to pay statement included. (see Footnote B)	yes	no			
	If applicable, is there a letter of Authorization for exclusive use only.					
4	Formulator's Exemption Statement (EPA Form 8570-27) completed and signed (N/A if source is unregistered or applicant owns the technical)			X		
	Data Matrix (EPA Form 8570-35) both internal and external copies (PR 98-5) completed and signed (N/A if 100% repack)			X		
5	a) Selective Method (Fee category experts use)	yes	no			
		X				
	b) Cite-All (Fee category experts use)					
	c) Applicant owns all data (Fee category experts use)					
6	5 Copies of Label (Electronic labels on CD are encouraged and guidance is available)			X		
7	Is the data package consistent with PR Notice 86-5			X		
8	Notice of Filing included with petitions					X

9	If applicable for conventional applications, <u>reduced risk rationale</u>			X
10	<u>Required Data</u> and/or data waivers. See Footnote C.			
	a) List study (or studies) not included with application			

Comments: Studies passed H-B review.

491029.

Insects Approved for Food Use under 40 CFR 182.970,

Pre-Harvest Application to Growing Crops.

T.O.

* N/A – Not Applicable

Footnotes

A. During the 21 day initial content review, all CSFs will be reviewed to determine whether all inerts listed, including fragrances, are approved for the proposed uses or have an application pending with the Agency. If an unapproved inert with no application pending with the Agency is identified, the applicant must either 1) resolve the inert issue by, for example, removing the inert, substituting it with an approved inert, submitting documentation that EPA approved the inert for the proposed pesticidal uses, correcting mistakes on the CSF, etc. or 2) provide the data to support OPP approval of the inert or 3) withdraw the application. Removing or substituting an inert ingredient will require a new CSF and may require submission of data. All information, forms, data and documentation resolving the inert issue must have been received by the Agency or the application withdrawn within the 21 day period, otherwise, the Agency will reject the application as described below.

To successfully complete this aspect of the 21 day initial content screen, applicants are **strongly encouraged** to verify that all inert ingredients have been approved for the application's uses or have an application pending with the Agency **even if a product is currently registered** by consulting the [inert Web site](#) and if the inert is not approved nor has an application pending with the Agency, **to obtain the necessary inert approval prior to submitting an application to register a pesticide product containing that inert ingredient.** Some inert ingredients are no longer approved for food uses or certain types of uses. The name and/or CAS number on a CSF must match the name and CAS number on this web site. Simple typographical errors in the name or CAS number have resulted in processing delays.

If an inert is not listed on the inert ingredient web site and the applicant believes that the inert has been approved, the applicant should contact the Inert Ingredient Assessment Branch (IIAB) at inertsbranch@epa.gov and resolve the issue. Copies of the correspondence with IIAB resolving the issue should accompany the application. All new inerts except PIP inerts are reviewed by IIAB. The IIAB should also be contacted for any questions on what supporting data needs to be submitted for and the Agency's inert review process. Questions on PIP inerts should be directed to the [Chief of Microbial Pesticides Branch](#).

When a brand, trade, or proprietary name of an inert ingredient is listed on a CSF, additional information such as an alternate name of the inert, CAS number or other information must also be included to enable the Agency to determine if it has been approved. Each component of an inert mixture (including a fragrance) must be identified. In some cases, the supplier of the mixture or fragrance may need to provide this information to the Agency. Prior to the Agency's receipt of an application, applicants must arrange with a proprietary mixture or fragrance supplier to provide the component information to the Agency or promptly upon EPA's request. If the inert ingredients in a proprietary blend (including fragrances) cannot or are not identified or provided within the 21-day content review period, the Agency will reject the application.

During the 21 day content review, applicants should submit information to the individual identified by the Agency when the applicant is informed of an unapproved inert.

Unapproved Inerts Identified on CSFs

All applications except conventional new products and PIPs

Once an unapproved inert is identified on a CSF, the Agency will contact the applicant with the following options:

1. Correct the application by, for instance, correcting the inert's identity or CAS number, providing documentation that the inert has been approved, or removing the unapproved inert from the CSF or replacing it with one that is approved for the application's uses; or
2. Provide the required information necessary to identify an inert approval application that is pending with the Agency; or
3. Submit the information and data needed for the Agency to approve the unapproved inert. If this option is selected and implemented, the Agency may request an extension in the PRIA decision review timeframe to accommodate the inert review/approval process;
4. Withdraw the application (the Agency retains 25% of the full fee for the fee category estimated); or

If none of these options is selected and implemented by the applicant within the 21 day content review period, the Agency will reject the application and retain 25% of the full fee of the category identified.

Conventional New Product Applications

When the Registration Division identifies an unapproved inert on a CSF with an application for a new product that the applicant has not identified as requiring an inert approval (R300 or R301), it will contact the applicant with the following options:

1. Correct the application by, for instance, correcting the inert's identity or CAS number, providing documentation that the inert has been approved, or removing the unapproved inert from the CSF or replacing it with one that is approved for the application's uses; or
2. Submit the information and data needed for the Agency to approve the unapproved inert, including any required petition to establish or amend a tolerance or exemption from a tolerance. (This option may change the PRIA category for the application, which could require a longer decision review time and a larger fee. If additional fees are due, they must be received by the Agency within the 21 day content review period.)

3. Withdraw the application (the Agency retains 25% of the full fee for the fee category estimated); or

If none of the above options is selected and implemented during the 21-day content-review period, the Agency will reject the application and retain 25% of the appropriate fee for the new product-inert approval category.

PIP Applications

When the Biopesticide and Pollution Prevention Division identifies an unapproved inert on a PIP CSF and a request to approve the inert does not accompany the application, it will contact the applicant with the following options:

1. Correct the application by, for instance, correcting the spelling or name of the inert to that in 40 CFR 174, or providing documentation that the inert has been approved; or
2. Submit the information and data needed for the Agency to approve the unapproved inert. If an inert ingredient tolerance exemption petition is required, the petition must be received by the Agency and the B903 fee paid within the 21 day period. If this option is selected and implemented, the Agency will discuss harmonizing the timeframe for both actions.
3. Withdraw the application (the Agency retains 25% of the full fee for the fee category estimated); or

If none of the above options is selected and implemented during the 21 day content review period, the Agency will reject the application and retain 25% of the fee.

B. A policy on documentation of offers to pay is still being developed, however, for a me-too or fast track (similar/identical) new product, R300 or A530, an application without the necessary authorizations of offers to pay will be placed into either R301 or A531. The Agency recommends that authorizations of offers to pay be submitted with other PRIA applications to avoid delays in the Agency's decision.

C. Biopesticide applicants are advised to contact the Agency and discuss study waivers prior to submitting their application to the Agency. Documentation of such discussions should be submitted with the study waiver.

Jackson, Tracy

From: Leanne Pruett [Leanne@PyxisRC.com]
Sent: Wednesday, April 24, 2013 11:44 AM
To: Jackson, Tracy
Subject: RE: Application 89799-R

Hi, Tracy --

Thanks for your question.

Cavalier 2L is an agricultural product, and we don't list efficacy for those products. Typically, only public health or animal use product (maybe a few others, too) require efficacy data, but agricultural use products don't require it.

Best Regards,
Leanne

From: Jackson, Tracy [<mailto:jackson.tracy@epa.gov>]
Sent: Wednesday, April 24, 2013 11:37 AM
To: Leanne Pruett
Subject: Application 89799-R

Dear Ms. Pruett,

I am contacting you regarding your submission of Cavalier 2L (89799-R). The data matrix does not have efficacy data listed. Is it required?

Thank you

Tracy Jackson
EPA Contractor
703-308-7227
2777 S. Crystal Drive
Arlington, VA 22202

Jackson, Tracy

From: Jackson, Tracy
Sent: Wednesday, April 24, 2013 11:37 AM
To: 'Leanne@PyxisRC.com'
Subject: Application 89799-R

Dear Ms. Pruett,

I am contacting you regarding your submission of Cavalier 2L (89799-R). The data matrix does not have efficacy data listed. Is it required?

Thank you

Tracy Jackson
EPA Contractor
703-308-7227
2777 S. Crystal Drive
Arlington, VA 22202



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

April 16, 2013

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

OPP Decision Number: D-477620
EPA File Symbol or Registration Number: 89799-R
Product Name: CAVALIER 2L
EPA Receipt Date: 15-Apr-2013
EPA Company Number: 89799
Company Name: RAYMAT CROP SCIENCE, INC

LEANNE PRUETT
PYXIS REGULATORY CONSULTING, INC
RAYMAT CROP SCIENCE, INC
4110 136TH ST. NW
GIG HARBOR, WA 98332-

SUBJECT: Receipt of Registration Application Subject to Registration Service Fee

Dear Registrant:

The Office of Pesticide Programs has received your application and certification of payment. If you submitted data with this application, the results of the PRN-2011-3 screen will be communicated separately. During the administrative screen, the Office of Pesticide Programs has determined that this Action is subject to a Pesticide Registration Service Fee as defined in the Pesticide Registration Improvement Act.

The Action has been identified as Action Code: R300
NEW PRODUCT;OR SIMILAR COMBINATION PRODUCT (ALREADY REGISTERED) TO AN IDENTICAL OR SUBSTANTIALLY SIMILAR IN COMPOSITION AND USE TO A REGISTERED
PRODUCT;REGISTERED SOURCE OF ACTIVE INGREDIENT;NO DATA REVIEW ON ACUTE TOXICITY, EFFICACY OR CRP - ONLY PRODUCT CHEMISTRY DATA;CITE-ALL DATA CITATION, OR SELECTIVE DATA CITATION WHERE APPLICANT OWNS ALL REQUIRED DATA, OR APPLICANT SUBMITS SPECIFIC AUTHORIZATION LETTER FROM DATA OWNER;CATEGORY ALSO INCLUDES 100% RE-PACKAGE OF REGISTERED END-USE OR MANUFACTURING-USE PRODUCT THAT REQUIRES NO DATA SUBMISSION NOR DATA MATRIX;

No additional payment is due at this time.

If you have any questions, please contact the Pesticide Registration Service Fee Ombudsman at (703) 308-9362.

Sincerely,
Nerisa Stone
Front End Processing Staff
Information Technology & Resources Management Division

Fee for Service

¹⁰
{9337266~

This package includes the following

- ☒ New Registration
- ☐ Amendment

for Division

- ☐ AD
- ☐ BPPD
- ☒ RD

☒ Studies? ☐ Fee Waiver?

☐ volpay % Reduction: _____

Risk Mgr. 7

Receipt No.

S- 933726

EPA File Symbol/Reg. No.

89799-R

Pin-Punch Date:

4/15/2013

This item is NOT subject to FFS action.

Action Code:

Requested: R300

Granted: R300

Amount Due: \$ 1,434⁰⁰

Parent/Child Decisions:

☐ Inert Cleared for Intended Use

☐ Uncleared Inert in Product

Reviewer: 

Date: 4-16-13

Remarks:

similarity clinic

Receipt for Section 3

S: 933726

Regulatory Type: Product Registration - Section 3

Fee For Service: ☒ Yes ☐ No

Application Type: New Registration

Billable: ☒ Yes ☐ No

Company: 89799 RAYMAT CROP SCIENCE, INC

V

Risk Manager: Registration Division, Risk Management Team 7

Product #: 89799-R

Product Name: CAVALIER 2L

Me Too

Section3: 400-461

Me Too

Product Name: DIMILIN 2L

Application Date: 11-Apr-2013



OPP Rec'd Date: 15-Apr-2013



Front End Date: 15-Apr-2013



Risk Manager Send Date:



FFS Due Date:

Negotiated Due Date:

OPP Target Date:

Receipt Content

Study

CSF

View/Edit

Receipt Description:

Application for a me-too registration

New Ingredient

Request Date

New Ingredient

Received Date

Form 1

Signature Date

Form 2

Signature Date

Online Payment

Step 3: Confirm Payment

1 | 2 | 3

Thank you.

Your transaction has been successfully completed.

Pay.gov Tracking Information

Application Name: PRIA Service Fees

Pay.gov Tracking ID: 25A9TKQB

Agency Tracking ID: 74434138956

Transaction Date and Time: 04/11/2013 12:50 EDT

Payment Summary

Address Information

Account Holder Name: James A. Oliver

3187 Robertson

Billing Address: Gin Road

Billing Address

2:

City: Hernando

State / Province: MS

Zip / Postal Code: 38632

Country: USA

Account Information

Card Type: American Express

Card Number: *****2003

Decision Number:

Registration Number:

Company Name: Raymat Crop Science, Inc.

Company Number: 89799

Action Code: R300

Payment Information

Payment Amount: \$1,434.00

Transaction Date 04/11/2013
and Time: 12:50 EDT

PYXIS REGULATORY CONSULTING, INC.

4110 136th St. NW
Gig Harbor, WA 98332

Phone: 253-853-7369
Fax: 253-853-5516
www.PyxisRC.com

April 11, 2013

John Hebert (PM7)
Document Processing Desk (REGFEE)
Office of Pesticide Programs (7504P)
U.S. Environmental Protection Agency
Room S-4900, One Potomac Yard
2777 S. Crystal Drive
Arlington, VA 22202-4501

RE: Raymat Crop Science, Inc. -- Cavalier 2L (EPA Reg. No. 89799- XX)
Application for New Pesticide Registration

Dear Mr. Hebert,

On behalf of Raymat Crop Science, Inc. I am submitting an application for registration of Cavalier 2L, an end-use product containing diflufenzuron as the active ingredient. In support of this application, we submit the following documents:

1. Three (3) copies of EPA Form 8570-1 (Application for Registration)
2. Copy of PRIA payment receipt
3. Three (3) copies of the Basic Confidential Statement of Formula (EPA Form 8570-4)
4. Three (3) copies of the proposed labeling
5. One copy of the proposed label on CD
6. Certification with respect to Label Integrity
7. Formulators Exemption Statement (EPA Form 8570-27)
8. Certification with Respect to Citation of Data (EPA Form 8570-34)
9. Agency Internal Use Copy of the Data Matrix (EPA Form 8570-35)
10. Public File Copy of the Data Matrix (EPA Form 8570-35)
11. Letter of Authorization from Summit Agro North America
12. Three (3) copies of the Product Specific Data

Volume I	830.1550, 830.1600, 830.1650, 830.1670, 830.1750, 830.1800	Pruett, L. (2013). Cavalier 2L Product Properties Report [Contains Description of Materials Used to Produce the Product, Description of the Formulation Process, Discussion of Formation of Impurities, Certified Limits and Enforcement Analytical Method] <i>Contains Confidential Business Information.</i>
Volume II	830.6302, 830.6303, 830.6304, 830.6314, 830.6315, 830.7000, 830.7100, 830.7300	Leopard, B. Physical and Chemical Characteristics of Cavalier 2L [Contains Color, Physical State, Odor, Oxidation / Reduction, Flammability, pH, Viscosity, Density]

Raymat Crop Science, Inc. believes its product, Cavalier 2L, is substantially similar to a currently registered product (EPA Reg. No. 400-461). Raymat believes this application falls under Category R300 (44: New product – Me-Too, Fast Track – 4 month timeline, \$1434.00 PRIA fee) as only product chemistry data are being submitted to support the application for registration and the cite-all option under the selective method is being used to support product specific acute toxicity data requirements. In addition, the technical source of active ingredient is based on a registered source of supply and therefore, Cavalier 2L qualifies for Formulators Exemption for diflubenzuron generic data requirements.

If you have any questions or concerns regarding this application for registration, or require additional information, please contact me at (253) 853-7369 or Leanne@PyxisRC.com.

Best Regards,

A handwritten signature in black ink, appearing to read "P. Leanne Pruett". The signature is fluid and cursive, with a horizontal line extending from the end.

P. Leanne Pruett
Pyxis Regulatory Consulting

Enclosures

cc: Raymat Crop Science, Inc.



United States
Environmental Protection Agency
Washington, DC 20460
Formulator's Exemption Statement
(40 CFR 152.85)

Applicant's Name and Address

Raymat Crop Science, Inc.
440 Boulder Ct., Suite 300
Pleasanton, CA 94566

EPA File Symbol/Registration Number
89799 - XX

Product Name
Cavalier 2L

Date of Confidential Statement of Formula (EPA Form 8570-4)
March 30, 2013

As an authorized representative of the applicant for registration of the product identified above, I certify that:

(1) This product contains the following active ingredient(s):

Diflubenzuron

(2) Of these, each active ingredient listed in paragraph (4) is present solely as the result of the use of that active ingredient in the manufacturing, formulation or repackaging another product which contains that active ingredient which is registered under FIFRA Section 3, is purchased by us from another person and meets the requirements of 40 CFR section 158.50(e)(2) or (3).

(3) Indicate by checking (A) or (B) below which paragraph applies:

☒ (A) An accurate Confidential Statement of Formula (EPA FORM 8570-4) for the above identified product is attached to this statement. That formula statement indicates, by company name, registration number, and product name, the source of the active ingredient(s) listed in paragraph (1).

OR

☐ (B) The Confidential Statement of Formula (CSF)(EPA Form 8570-4) referenced above and on file with the EPA is complete, current, an accurate and contains the information required on the current CSF.

(4) The following active ingredients in this product qualify for the formulator's exemption.

Source

Active Ingredient	Product Name	Registration Number
Diflubenzuron	[REDACTED]	[REDACTED]
Signature 	Name and Title P. Leanne Pruett, Authorized Agent	Date March 30, 2013

EPA Form 8570-27 (Rev. 06-2004)

Copy 1 - EPA
Copy 2 - Applicant copy



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
401 M Street, S.W.
WASHINGTON, D.C. 20460

Paperwork Reduction Act Notice: The public reporting burden for this collection of information is estimated to average 1.25 hours per response for registration and 0.25 hours per response for reregistration and special review activities, including time for reading the instructions and completing the necessary forms. Send comments regarding burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden to: Director, OPPE Information Management Division (2137), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, DC 20460. Do not send the completed form to this address.

Certification with Respect to Citation of Data

Applicant's/Registrant's Name, Address, and Telephone Number Raymat Crop Science, Inc. 440 Boulder Ct., Suite 300, Pleasanton, CA 94566; (510) 579-7685	EPA Registration Number/File Symbol 89799 - XX
Active Ingredient(s) and/or representative test compound(s) Diflubenzuron	Date April 10, 2013
General Use Pattern(s) (list all those claimed for this product using 40 CFR Part 158) Terrestrial food and feed; Terrestrial non-food	Product Name Cavalier 2L

NOTE: If your product is a 100% repackaging of another purchased EPA-registered product labeled for all the same uses on your label, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

☐ I am responding to a Data-Call-In Notice, and have included with this form a list of companies sent offers of compensation (the Data Matrix form should be used for this purpose).

SECTION I: METHOD OF DATA SUPPORT (Check one method only)

☐ I am using the cite-all method of support, and have included with this form a list of companies sent offers of compensation (the Data Matrix form should be used for this purpose).

☒ I am using the selective method of support (or cite-all option under the selective method), and have included with this form a completed list of data requirements (the Data Matrix form must be used).

SECTION II: GENERAL OFFER TO PAY

[Required if using the cite-all method or when using the cite-all option under the selective method to satisfy one or more data requirements]

☒ I hereby offer and agree to pay compensation, to other persons, with regard to the approval of this application, to the extent required by FIFRA.

SECTION III: CERTIFICATION

I certify that this application for registration, this form for reregistration, or this Data-Call-In response is supported by all data submitted or cited in the application for registration, the form for reregistration, or the Data-Call-In response. In addition, if the cite-all option or cite-all option under the selective method is indicated in Section I, this application is supported by all data in the Agency's files that (1) concern the properties or effects of this product or an identical or substantially similar product, or one or more of the ingredients in this product; and (2) is a type of data that would be required to be submitted under the data requirements in effect on the date of approval of this application if the application sought the initial registration of a product of identical or similar composition and uses.

I certify that for each exclusive use study cited in support of this registration or reregistration, that I am the original data submitter or that I have obtained the written permission of the original data submitter to cite that study.

I certify that for each study cited in support of this registration or reregistration that is not an exclusive use study, either: (a) I am the original data submitter; (b) I have obtained the permission of the original data submitter to use the study in support of this application; (c) all periods of eligibility for compensation have expired for the study; (d) the study is in the public literature; or (e) I have notified in writing the company that submitted the study and have offered (i) to pay compensation to the extent required by sections 3(c)(1)(F) and/or 3(c)(2)(B) of FIFRA; and (ii) to commence negotiations to determine the amount and terms of compensation, if any, to be paid for the use of the study.

I certify that in all instances where an offer of compensation is required, copies of all offers to pay compensation and evidence of their delivery in accordance with sections 3(c)(1)(F) and/or 3(c)(2)(B) of FIFRA are available and will be submitted to the Agency upon request. Should I fail to produce such evidence to the Agency upon request, I understand that the Agency may initiate action to deny, cancel or suspend the registration of my product in conformity with FIFRA.

I certify that the statements I have made on this form and all attachments to it are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

Signature

P. Leanne Pruett

Date

4/10/2013

Typed or Printed Name and Title

P. Leanne Pruett, Agent

R 300 and 301

100% identical (repack): YES or (NO) (circle one)

{If **yes**, it's a 100% repack - then product chemistry, acute toxicity and efficacy data are not required}

Data on Group A and B must be submitted - Group A and B can not be cited.

Guideline No.	Group A: Product Chemistry Data Study Title	Data submitted	
		Yes	No
830.1550	Product Identity & Composition	✓	
830.1600	Description of materials used to produce the product	✓	
830.1650	Description of formulation process	✓	
830.1670	Discussion on the formation of impurities	✓	
830.1700	Preliminary analysis <i>Not Required</i>		✓
830.1750	Certified limits (158.345)	✓	
830.1800	Enforcement analytical method	✓	

Guideline No.	Group B: Product Chemistry Data Study Title	Data submitted	
		Yes	No
830.6302	Color	✓	
830.6303	Physical State	✓	
830.6304	Odor	✓	
830.6314	Oxidation/Reduction (Chemical incompatibility)	✓	
830.6315	Flammability	✓	
830.6316	Explosibility <i>Waived</i>		✓
830.6317	Storage stability <i>Not Required</i>		✓
830.6319	Miscibility <i>NA</i>		✓
830.6320	Corrosion Characteristics <i>Not Required</i>		✓
830.6321	Dielectric Breakdown voltage <i>NA</i>		✓
830.7000	pH	✓	
830.7100	Viscosity	✓	
830.7300	Density	✓	

R 300 and 301

New products must provide a bridging rationale document. The bridging document directs OPP to use a currently registered set of 6 acute toxicity data and label; instead of submitting product specific data.

Guideline No.	Acute toxicity (6 pack) Study Title	Cited	
		Yes	No
870.1100	Acute Oral (LD50)	✓	
870.1200	Acute Dermal (LD50)	✓	
870.1300	Acute Inhalation (LC50)	✓	
870.2400	Acute Eye Irritation	✓	
870.2500	Acute Dermal Irritation	✓	
870.2600	Dermal Sensitization	✓	

Efficacy – which guideline depends on the proposed label use and they must cite the data to be used for the bridging rationale.

Not Required

Guideline No.	Efficacy Study Titles	Cited		Comments
		Yes	No	
810.3100	Soil Treatments for Imported Fire Ants			
810.3200	Livestock, Poultry, Fur and Wool-Bearing Animal Treatments			
810.3300	Treatments to Control Pests of Humans and Pets			
810.3400	Mosquito, Black Fly, and Biting Midge (Sand Fly) Treatments			
810.3500	Premises Treatments			
810.3600	Structural Treatments			
810.3800	Methods for Efficacy Testing of Termite Baits			

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DATA MATRIX

Date: April 10, 2013		EPA Reg. No./File Symbol: 89799-XX		Page 1 of 5	
Applicant's/Registrant's Name & Address: Raymat Crop Science, Inc. 440 Boulder Ct., Suite 300, Pleasanton CA 94566		Product: Cavalier 2L			
Ingredient: Diflubenzuron (CAS No. 35367-38-5)					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
SERIES 61	PRODUCT CHEMISTRY REPORT				
830.1550	Product Identity and Composition	ENCLOSED	Raymat Crop Science, Inc.	OWN	
830.1600	Description of Materials used to produce product	ENCLOSED	Raymat Crop Science, Inc.	OWN	
830.1620	Description of Production Process				Not Required ¹
830.1650	Description of Formulation Process	ENCLOSED	Raymat Crop Science, Inc.	OWN	
830.1670	Discussion of Formation of Impurities	ENCLOSED	Raymat Crop Science, Inc.	OWN	
830.1700	Preliminary Analysis				Not Required ²
830.1750	Certified Limits	ENCLOSED	Raymat Crop Science, Inc.	OWN	
830.1800	Enforcement Analytical Method	ENCLOSED	Raymat Crop Science, Inc.	OWN	
SERIES 63	PHYSICAL-CHEMICAL CONSTANTS				
830.6302	Color	ENCLOSED	Raymat Crop Science, Inc.	OWN	
830.6303	Physical State	ENCLOSED	Raymat Crop Science, Inc.	OWN	
830.6304	Odor	ENCLOSED	Raymat Crop Science, Inc.	OWN	
830.6313	Stability to Normal, Elevated T's, Metals, Metal Ions				Not Required ³
Signature			Name and Title: P. Leanne Pruett, Regulatory Consultant	Date: 4-10-2013	

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Applicant's/Registrant's Name & Address: Raymat Crop Science, Inc. 440 Boulder Ct., Suite 300, Pleasanton CA 94566		Product: Cavalier 2L			
Ingredient: Diflubenzuron (CAS No 35367-38-5)					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
SERIES 61	PHYSICAL-CHEMICAL CONSTANTS (continued)				
830.6314	Oxidation / Reduction: chemical incompatibility	ENCLOSED	Raymat Crop Science, Inc.	OWN	
830.6315	Flammability	ENCLOSED	Raymat Crop Science, Inc.		
830.6316	Explosibility				Waiver ²
830.6317	Storage Stability				PR-92-5 ⁵
830.6319	Miscibility				Waiver ⁵
830.6320	Corrosion Characteristics				PR-92-5 ⁵
830.6321	Dielectric Breakdown Voltage				Waiver ⁷
830.7000	pH	ENCLOSED	Raymat Crop Science, Inc.	OWN	
830.7050	UV / Visible Absorption				Not Required ³
830.7100	Viscosity	ENCLOSED	Raymat Crop Science, Inc.	OWN	
830.7200	Melting Point / Melting Range				Not Required ³
830.7220	Boiling Point / Boiling Range				Not Required ³
830.7300	Density / Relative Density / Bulk Density	ENCLOSED	Raymat Crop Science, Inc.	OWN	
830.7370	Dissociation Constant				Not Required ³
Signature 			Name and Title: P. Leanne Pruett, Regulatory Consultant		Date: 4-10-2013

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Applicant's/Registrant's Name & Address: Raymat Crop Science, Inc. 440 Boulder Ct., Suite 300, Pleasanton CA 94566		Product: Cavalier 2L
Ingredient: Diflubenzuron (CAS No. 35367-38-5)		

Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
SERIES 61	PHYSICAL-CHEMICAL CONSTANTS (continued)				
830.7520	Particle Size, Fiber Length, diameter distribution				
830.7550, .7560, .7570	N-octanol/water Partition Coefficient				Waiver ⁸
830.7840, .7860	Water Solubility				Not Required ³
830.7950	Vapor Pressure				Not Required ³
SERIES 870	ACUTE TOXICITY				
870.1100	Acute Oral Toxicity	Cite-All		PAY	
870.1200	Acute Dermal Toxicity	Cite-All		PAY	
870.1300	Acute Inhalation Toxicity	Cite-All		PAY	
870.2400	Acute Eye Irritation	Cite-All		PAY	
870.2500	Acute Dermal Irritation	Cite-All		PAY	
870.2600	Skin Sensitization	Cite-All		PAY	

Signature


Name and Title:
P. Leanne Pruett, Regulatory Consultant

Date: 4-10-2013

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Applicant's/Registrant's Name & Address: Raymat Crop Science, Inc. 440 Boulder Ct., Suite 300, Pleasanton CA 94566		Product: Cavalier 2L		
Ingredient: Diflufenazuron (CAS No. 35367-38-5)				
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status
Diflufenazuron Product Specific Data Requirements Raymat Crop Science, Inc. is using the cite-all option under the selective method to satisfy acute toxicity data requirements. Raymat will make offers-to-pay to the following companies on the September 27, 2012 Data Submitters List for Diflufenazuron (Code 108201)				
		Cite-All	Farnam Companies, Inc. 301 West Osborn Rd., Phoenix, AZ 85103	PAY
		Cite-All	E. I. Du Pont De Nemours and Company 1007 Market St., Wilmington, DE 19898	PAY
		Cite-All	Chemtura Corporation 199 Benson Rd., Middlebury, CT 06749	PAY
		Cite-All	Whitmire Micro-Gen Rsch. Laboratories 3568 Tree Court Industrial Blvd. St. Louis, MO 63122	PAY
		Cite-All	Wellmark International 1501 E Woodfield Rd., Suite 200 West Schaumburg, IL 60173	PAY
		Cite-All	Aceto Agricultural Chemicals Corp. 4 Tri Harbor Ct., Pt. Washington NY 11050	PAY
		Cite-All	Pacific Chemical, Div. Pace National Corp 500 7 th Ave., S. Kirkland, WA 98033	PAY
		Cite-All	Bayer Healthcare, LLC P.O. Box 390 Shawnee Mission, KS 66201	PAY
		Cite-All	Mars Fishcare North America, Inc. POB 1014, 102 1/2 S. Chauncey St. Columbia City, IN 46725	
Signature 		Name and Title: P. Leanne Pruett, Regulatory Consultant		
		Date: 4-10-2013		

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Ingredient: Diflubenzuron (CAS No. 35367-38-5)					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
		Cite-All	The Agriculture & Nutrition Co. 5220 Speaker Rd., Kansas City, KS 66106	PAY	
		Cite-All	Spray Drift Task Force 1900 K Street, NW, Washington, DC 20006	PAY	
		Cite-All	Outdoor Residential Exposure TF 1350 I Street, NW, Washington, DC 20005	PAY	
		Cite-All	Agricultural Reentry Task Force 1350 I Street, NW, Washington DC 20005	PAY	
		Cite-All	Innovative Pest Control Products P. O. Box 880216, Boca Raton, FL 33488	PAY	
		Cite-All	FIFRA Endangered Species Task Force 1350 I St., NW, Washington DC 20005	PAY	
		Cite-All	Agricultural Handlers Exposure TF P. O. Box 509, 1720 Prospect Drive Macon, MO 63552	PAY	
		Cite-All	Homeguard Distributors, Inc., 12597 Ulmerton Rd., Largo, FL 33774	PAY	
		Cite-All	Redeagle International LLC P. O. Box 640, Hockessin, DE 19707	PAY	
		Cite-All	Champion Farmaquimico Ltda. 4061 N 156 th Dr., Goodyear, AZ 85395	PAY	
		Cite-All	Raymat Materials Inc. 4061 N 156 th Dr., Goodyear, AZ 85395	PAY	
Signature 		Name and Title: P. Leanne Pruett, Regulatory Consultant			Date: 4-10-2013

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Endnotes for Cavalier 2L Data Matrix
April 10, 2013

¹830.1620 - Per OPPTS 830.1000, these data are not required for the registration of an end-use product. See 830.160 for formulation process information

²830.1700 – This product does not consist solely of the technical grade active ingredient (TGA), and is not produced by an integrated system, therefore, per OPPTS 830.1700, these data are not required

³830.6313, 830.7050, 830.7200, 830.7220, 830.7370, 830.7550, 830.7560, 830.7570, 830.7840, 830.7860, 830.7950 – These data are not required for registration of an end use product.

⁴830.6316 – Cavalier 2L does not have the chemical bonds or functional groups associated with explosive chemicals, therefore this data is not required. Please refer to the Confidential Statement of Formula for additional information on the composition of Cavalier 2L

⁵830.6317, 830.6320 – Per PR Notice 92-5, storage stability and corrosion characteristic data are not required to be submitted unless specifically requested by the Agency. Raymat Crop Science, Inc. will submit these data upon registration of the product, if required.

⁶830.6319 – Cavalier 2L is not an emulsifiable concentrate to be diluted with any solvent (including petroleum solvents); therefore, miscibility data is not applicable.

⁷830.6321 – Cavalier 2L is not proposed for use around electrical equipment. Therefore this data is not applicable.

⁸830.7520 – Cavalier 2L is not water insoluble, and is not a fibrous material, therefore these data are not applicable.

Certification with Respect to Label Integrity

version: 9/11/02

I certify that the information (including, but not limited to, text, tables, and graphics) contained in the electronic file identified below by file name and submitted with this certification is the same information as that on the paper copies of these documents included with this submission.

PROPOSED LABEL		
EPA Registration #	Date Submitted to EPA	Electronic file name
89799-xx	March 30, 2013	089799-xxxxx.20130330.Cavalier 2L_Appl for Regn.PDF

I certify that the statements that I have made on this form are true, accurate, and complete. I acknowledge that any knowingly false or misleading statements may be punishable by fine or imprisonment or both under applicable law.



Signature

March 30, 2013
Date

P. Leanne Pruett

Name (typed)

Agent

Title

NOTIFICATION

SEP 10 2013

RESTRICTED USE PESTICIDE

Due to toxicity to aquatic invertebrate animals. For retail sale to and use only by Certified Applicators, or persons under their direct supervision, and only for those uses covered by the Certified Applicator's certification.

CAVALIER 2L

Insect Growth Regulator

Aqueous Flowable

For use on **field and row crops** (artichoke, barley, oats, triticale and wheat; cotton; leafy brassica and turnip greens; peanut; pepper; rice; soybean; turfgrass), **orchard crops** (oranges, grapefruit, tangerine and pummelo; pear; stonefruit (excluding cherries); tree nuts) and **non-crop uses** (livestock and poultry premises; grassland; non-crop areas)

ACTIVE INGREDIENT:

Di flubenzuron: [((4-Chlorophenyl)amino)carbonyl]-2,6-difluorobenzamide*22.0%

OTHER INGREDIENTS:78.0%

TOTAL:100.0%

*Contains 2 lbs. di flubenzuron per gallon

KEEP OUT OF REACH OF CHILDREN CAUTION

FIRST AID	
IF SWALLOWED:	<ul style="list-style-type: none">• Call a poison control center or doctor immediately for treatment advice.• Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor.• Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none">• Take off contaminated clothing.• Rinse skin immediately with plenty of water for 15-20 minutes.• Call a poison control center or doctor for treatment advice.
IF INHALED:	<ul style="list-style-type: none">• Move person to fresh air.• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.• Call a poison control center or doctor for further treatment advice.
IF IN EYES:	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15-20 minutes.• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.• Call a poison control center or doctor for treatment advice.
HOT LINE NUMBER	
Have the Cavalier 2L container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact Chemtrec at 1-800-424-9300 for emergency medical information.	

EPA Reg. No. 89799-1

EPA Est. No. XXXXX-XX-X

Manufactured for:

Raymat Crop Science, Inc.
440 Boulder Court, Suite 300
Pleasanton, CA 94566

Net Contents: _____Gallon(s)

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for Category A on an EPA chemical-resistant selection chart.

Applicators and Other Handlers Must Wear: A long-sleeved shirt & long pants; chemical-resistant gloves, such as barrier laminate, nitrile rubber, neoprene rubber, natural rubber, polyethylene, PVC, or viton, when mixing and loading and also when using hand-held equipment; shoes plus socks.

Mixers and Loaders Using Fixed-Wing Aircraft Must Wear: A long-sleeved shirt and long pants; chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, PVC or viton; shoes plus socks; dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C or a NIOSH approved respirator with any R, P or HE filter).

Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems (including water soluble bags), enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of glove before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to terrestrial juvenile insects and aquatic invertebrates/mollusks/insects. Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

DIRECTIONS FOR USE
RESTRICTED USE PESTICIDE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- coveralls
- chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride
- shoes plus socks

INSTRUCTIONS AND INFORMATION

RUNOFF

Cavalier 2L has a potential for runoff, which can occur up to several months after use. Runoff containing this product is more likely to occur in soils that have shallow water tables or are poorly draining.

The following will decrease the likelihood of contaminating water from runoff:

- a well maintained, level vegetative buffer strip situated between application areas and surface water features (i.e., ponds, springs, streams)
- application of product avoided if forecasts predict rainfall within 48 hours
- practices that foster sound erosion control

SPRAY DRIFT LABELING

This product may contaminate water through drift or spray in wind. Avoiding spray drift at the application site is the responsibility of the applicator.

The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator is responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to ULV applications on grassland and non-crop areas, for the control of grasshoppers and Mormon crickets.

1. The distance of the outermost nozzles on the boom must not exceed $\frac{3}{4}$ the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.
3. Observe the regulations of the State where applications are made.
4. Applicators must observe and abide by the requirements of the Aerial Drift Reduction Advisory.

Information on Droplet Size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

Controlling Droplet Size

Volume – Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.

Pressure – Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use high flow rate nozzles instead of increasing the pressure.

Number of nozzles – Use the minimum number of nozzles that provide uniform coverage.

Nozzle Orientation – Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from the horizontal will reduce droplet size and increase drift potential.

Nozzle Type – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Boom Length - For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

Application Height - Applications should not be made at a height greater than 10 feet above the largest plants unless a greater height is required for aircraft safety. Making applications at the lower height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment - When applications are made with a cross-wind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for the displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

Wind - Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect drift.

Temperature and Humidity - When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are hot and dry.

Temperature Inversions - Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upwards and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas - The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

INFORMATION

Cavalier 2L is an insect growth regulator, whose unique mode of action disrupts the regular molting process of insect larvae. It is effective against Lepidoptera and Diptera species and a wide variety of other insect pests, and performs well when used in IPM programs.

RESTRICTIONS

- Cavalier 2L cannot be applied to water bodies where swimming is expected
- For Field Crops, Row Crops, Orchard Uses, Grassland, Non-crop Areas: Do not apply within 25 feet by ground or 150 feet by air of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries. All applications must include a 25 foot vegetative buffer strip within the buffer zone to decrease runoff.
- ROTATIONAL CROPS: Unless diflubenzuron is registered for use on a particular crop, wait one month after last application to plant food or feed crops in soils treated with Cavalier 2L.
- Due to distinctive mode of action, insects could take several days following application to show visible effects of Cavalier 2L.
- Do not apply via chemigation in the State of California.

APPLICATION INSTRUCTIONS

Mixing Directions – with water

- Fill a clean spray tank with half of the water required for treatment
- Begin agitation and add appropriate amount of Cavalier 2L to spray tank
- Add second half of water while maintaining agitation
- If adding oil, pour the appropriate amount slowly into the mixing tank. Making sure to use at least 2 parts of water to one part of oil will help avoid development of an invert emulsion

Mixing Directions – without water

Premix Cavalier 2L and other ingredients in a nurse tank before transferring into appropriate application equipment

-or-

- Fill a clean tank with appropriate amount of oil or oil-based insecticide
- Begin agitation and add appropriate amount of Cavalier 2L to spray tank
- Thoroughly mix contents of spray tank
- Drain a volume of carrier adequate to fill booms and piping system from the contents of the tank and then add back to tank

Compatibility – when combining Cavalier 2L with other pesticides, additives or adjuvants, test for compatibility and sprayability. In a lidded glass jar (~1 quart size), add all mix partners, in their relative proportions. Invert, shake or mix the jar thoroughly. Observe mixture for approximately 30 minutes (though signs of incompatibility will often be seen within 5 minutes). Read and follow the label of each tank mix Cavalier 2L used for precautionary statements, directions for use, rates and timings, and other restrictions.

Application – aerial or ground

Spray should be applied with equipment that gives uniform and complete coverage of the whole plant / crop surface. Equipment should be calibrated to deliver droplets of 150 to 220 microns in diameter. Continue constant agitation while mixing and applying Cavalier 2L.

Application – Chemigation*

*DO NOT APPLY VIA CHEMIGATION IN THE STATE OF CALIFORNIA

Cavalier 2L can be applied by chemigation in grassland and row crops. System should be properly equipped for insect control. Cavalier 2L can be applied only through sprinkler irrigation systems (center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move). Cavalier 2L cannot be applied through any other type of irrigation system. If treated water is not uniformly distributed, crop injury, illegal pesticide residues or lack of efficacy could occur.

In order to calibrate the irrigation system and injector to apply the mixture:

- Determine how many acres are irrigated by the chemigation system
- Once the irrigation rate has been set, determine how long (minutes) the system takes to cover the intended treatment area
- Determine the amount of mixture (total gallons) necessary to cover the desired acreage.
- Determine injector's gallon per minute rate by dividing amount of mixture (gallons) needed by time (minutes) to cover intended treatment area.
- Determine the correct ounces per minute rate (converting from gallons per minute)
- Operate system at desired irrigation rate and calibrate injector

It is suggested that the injector pump be calibrated at least twice before operation and the system be monitored during operation.

Your local extension service, university experts or equipment manufacturers or representatives can answer questions regarding calibration.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person shall shut the system down and make necessary adjustments should the need arise.

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

If the chemigation system is connected to a public water supply, the following conditions must also be met:

- 'Public water system' means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
- Chemigation systems connected to public water systems must contain a functional reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from a point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
- The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.
- Upon completion of insecticide application, remove scale, pesticide residues, and other foreign matter from the supply tank and entire injector system. Flush thoroughly with clean water.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

SPRINKLER CHEMIGATION

For continuously moving systems, the mixture containing Cavalier 2L must be injected continuously and uniformly into the irrigation water line as the sprinkler is moving. If continuously moving irrigation equipment is used, apply in no more than 0.25 inch of water. For sprinkler systems that do not move during operation, apply in no more than 0.25 inch of irrigation immediately before the end of the irrigation cycle.

Maintain continuous agitation of the pesticide supply tank for the duration of the application period.

To apply a pesticide using sprinkler chemigation, the chemigation system must meet the following specifications:

- The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch, which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

RESISTANCE MANAGEMENT

Cavalier 2L controls several economically important insect pests, and also provides a margin of safety to pollinators and beneficial insects when used as directed. Cavalier 2L is an effective addition to IPM programs which follow good management practices including:

- Scout regularly to determine new insect pressure and apply Cavalier 2L against larval and immature insect stages for optimum results
- Carefully follow all label directions, including application timing and rate
- Use chemical alternatives (such as oil)
- As part of an IPM program, protect beneficial arthropods
- Use sufficient water volume to obtain good coverage of foliage
- Alternate different insecticides with varying modes of action

SPECIFIC USE DIRECTIONS FIELD AND ROW CROPS

ARTICHOKE (California only)

Application Instructions

Cavalier 2L can be applied aerially in 10 to 20 gallons (total volume) per acre, or by ground application in 50 to 250 gallons (total volume) per acre. Make sure that application volume is sufficient for adequate coverage.

Application Rates

Artichoke Plume Moth: apply 8-16 fl. oz. per acre

Optimum results are obtained when Cavalier 2L is applied when first moths are caught in pheromone traps, or when moth flights start.

IMPORTANT

- For use only in California
- Cavalier 2L can be a part of an IPM program to manage target pest populations (in combination with cultural practices, target insect population early detection, threshold treatment levels, etc.). University or local extension representatives can give recommendations regarding IPM practices
- Maximum number of applications is 3 in any 30 day period
- Application interval is a minimum of 15 days
- Pre-harvest interval is 1 day before harvest

BARLEY, OATS, TRITICALE, & WHEAT

Application Instructions

Cavalier 2L can be applied aerially in 2 to 5 gallons (total volume) per acre, or by ground application in 5 to 15 gallons (total volume) per acre. Make sure that application volume is sufficient for adequate coverage.

Application Rates

Grasshoppers: apply 1 – 2 fl. oz. per acre

Optimum results are obtained when application is made to infesting grasshoppers that have reached the 2nd and 3rd nymphal stage of development. Adult grasshoppers will not be effectively controlled by Cavalier 2L.

Cereal Leaf Beetle: apply 4 fl. oz. per acre

Make application when egg laying begins to occur, for optimum results. If infestation advances into later instar larvae, do not apply Cavalier 2L.

IMPORTANT

- If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper population soon enough to minimize extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.
- Larvae and nymphs could take up to 5 to 7 days following application to show visible effects, due to the distinctive mode of action of Cavalier 2L.
- For use only in: Alaska; Colorado; Idaho; Montana; Nebraska, Western (West of Route 281); North Dakota, Western (West of Route 281); Oregon; South Dakota, Western (West of Route 281); Utah, Washington, Wyoming
- Maximum number of application is 1 per season
- Maximum amount of Cavalier 2L per acre is 4 fl. oz. per season
- Make application only up until the boot stage of growth
- Pre-harvest interval for forage is 3 days; Pre-harvest interval for hay is 15 days; Pre-harvest interval for grain and straw is 50 days.

COTTON

Application Instructions

Cavalier 2L may be applied aerially in 3 to 5 gallons (total volume) per acre, or by ground application in 10 to 20 gallons (total volume) per acre. Cavalier 2L can also be applied via ULV application in 20 to 48 fl. oz. total volume per acre aerially, or by ground application in 20 to 64 fl. oz. total volume per acre. Make sure the application volume is sufficient for adequate coverage.

Adjuvants

- If Cavalier 2L is being applied under conditions of high air temperature and/or low humidity, or other conditions that encourage water evaporation, 1 to 2 qts. oil is to be used with Cavalier 2L for control of larvae / nymphs
- For a low volume application (ground or aerial), the use of 1 pt. to 2 qts. of an emulsified vegetable or paraffinic crop oil can reduce evaporation of spray droplets (and subsequent drift), and can enhance canopy penetration
- When Cavalier 2L is being applied via ULV, 20 fl. oz. (minimum) of an emulsified cottonseed, vegetable or petroleum based oil carrier is to be used (if cottonseed oil used is non-emulsified, a compatibility agent may be necessary for thorough blending)

For oil specifications, check with your Raymat representative or supplier.

Application Rates

Beet Armyworm (early season before first bloom): Apply 2-4 fl. oz. per acre

For acceptable beet armyworm control in young cotton, apply Cavalier 2L when observing 2 beet armyworm egg masses or hatchouts per 100 feet of row, or other sign of beet armyworm activity. Make multiple directed or broadcast applications until 8 fl. oz. Cavalier 2L have been applied per acre, at application intervals of 5 to 7 days. Multiple applications more completely cover rapidly growing cotton plants, and Cavalier 2L's persistence can help prevent later buildup of beet armyworm populations.

Beet Armyworm (mid-season): apply 4-8 fl. oz. per acre

Make multiple applications at 5 to 7 day intervals, until 8 fl. oz. Cavalier 2L per acre have been applied. Start application around first bloom, up through mid-bloom. For more extreme larval pressure, or for larger cotton, use higher listed application rate. Make first application when a new generation of larvae is about to hatch (determined by peak beet armyworm moth catches in pheromone traps). For optimum control, treat cotton leaves during early stages of larval development, before populations become established.

Beet Armyworm (late season): apply 6-8 fl. oz. Cavalier 2L per acre

Apply when peak beet armyworm moth catches are observed in pheromone traps, after mid-bloom, but at least 14 days prior to harvest. For more extreme larval pressure, or for larger cotton, use higher listed application rate.

For control of **Fall Armyworm, Yellowstriped Armyworm, Southern Armyworm** and suppression of **Soybean Looper, Cabbage Looper, Saltmarsh Caterpillar**: apply 4 -8 fl. oz. per acre.

Make applications during a 5 to 7 day interval, in early larval development stages, until at least 8 fl. oz. Cavalier 2L per acre have been applied.

Boll Weevil (early season, before first bloom): apply 4-8 fl. oz. per acre

For optimum boll weevil control, apply initially at pinhead square stage of cotton growth. Wait 7 days before repeat application. For ULV application use the lower (4 fl. oz. per acre) rate.

Adjuvants: Use 2 to 4 quarts paraffinic crop oil, emulsified cottonseed oil or vegetable oil. Or if making a ULV application, use a minimum of 8 fl. oz. of vegetable or petroleum based oil carrier, oil-based insecticide or emulsified cottonseed oil (if cottonseed oil used is non-emulsified, a compatibility agent may be necessary for thorough blending). For oil specifications, check with your Raymat representative or supplier.

Cavalier 2L does not kill adult boll weevil, but controls populations by suppressing reproduction – eggs deposited by affected female weevils will not hatch. Seven to 10 days after initial treatment of female, non-hatching eggs are laid, and will continue to be laid for approximately 10 days, or longer if female boll weevil is exposed to additional applications of Cavalier 2L. Control of egg hatch and larval development within the pinhead square keeps it from shedding, and results in normal boll development. Multiple treatments and early application will result in best control.

Boll Weevil: apply 2-4 fl. oz. per acre

Apply when adult weevils are going into diapause, when cotton plant has begun blooming out at the top or has reached full vegetative growth. The number of weevils that appear in the spring is reduced when applications are made to adult weevils going into diapause to overwinter.

Make 2 to 3 (maximum) applications, at 7 to 14 day intervals.

Adjuvants: Use 2 to 4 quarts paraffinic crop oil, emulsified cottonseed oil or vegetable oil with a low volume application spray. Or if making a ULV application, use a minimum of 8 fl. oz. of vegetable or petroleum based oil carrier, oil-based insecticide or emulsified cottonseed oil (if cottonseed oil used is non-emulsified, a compatibility agent may be necessary for thorough blending).

Grasshopper: apply 2 fl. oz. per acre

When most infesting grasshoppers have reached the 2nd and 3rd nymphal stage of development, Cavalier 2L should be applied. For effective control, apply before grasshoppers reach the adult stage. If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper population soon enough to minimize extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

IMPORTANT:

- Cavalier 2L can be tank mixed with other cotton insecticides. Be careful when tank mixing Cavalier 2L with emulsifiable concentrate insecticides and oil, as phytotoxicity may result. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.
- Larvae and nymphs could take up to 5 to 7 days following application to show visible effects, due to the distinctive mode of action of Cavalier 2L.
- Maximum number of applications per season is 6
- Maximum amount of Cavalier 2L per acre is 24 fl. oz. per season
- For uses after boll opening, the maximum number of applications is 3, and the maximum amount of product per acre is 12 fl. oz.
- Pre-harvest interval is 14 days

LEAFY BRASSICA GROUP (includes: Broccoli raab, Cabbage, Chinese (bok choy), Collards, Kale, Mizuna, Mustard greens, Mustard spinach, Rape greens) and TURNIP GREENS

Application Instructions

Cavalier 2L can be applied via ground application in a minimum of 30 gallons of water per acre. Multiple applications can more effectively cover newly growing foliage. Make sure that application volume is sufficient for adequate coverage.

Application Rate

Grasshopper: apply 2-4 fl. oz. per acre

When most infesting grasshoppers have reached the 2nd and 3rd nymphal stage of development, Cavalier 2L should be applied. Reapply after 7 days if crop reinfestation (nymphal hatch out) continues. For effective control, apply before grasshoppers reach the adult stage. Use higher application rate for greater residual control, around dense foliage, or for areas with historically heavy grasshopper infestations.

IMPORTANT

- Larvae and nymphs could take up to 5 to 7 days following application to show visible effects, due to the distinctive mode of action of Cavalier 2L.
- If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper population soon enough to minimize extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.
- Populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting
- Do not apply to turnip varieties or cultivars with harvestable root
- Maximum number of applications per season is 4
- Maximum amount of product per acre is 16 fl. oz. per season
- Pre-harvest interval is 7 days

PEANUT

Application Instructions

Cavalier 2L can be applied aerially, in 3 to 5 gallons water per acre, or by ground application, in 9 to 35 gallons water per acre. Make sure that application volume is sufficient for uniform coverage.

Adjuvants: See COTTON section.

Application Rate

Velvet Bean Caterpillar, Mexican Bean Beetle, Green Cloverworm: apply 2-4 fl. oz. per acre

Armyworm (such as Beet, Fall, Southern, Yellow-striped), Lesser Cornstalk Borer: apply 4-8 fl. oz. per acre

Soybean Looper suppression: apply 4-8 fl. oz. per acre

For optimum control and minimization of insect damage, apply when larvae are small (less than 1/2 inch). Use higher application rate for greater residual control, around dense foliage, or for areas with historically heavy infestations. Cavalier 2L can be reapplied if necessary, to control reappearance of pests, after an application interval of 14 days.

Grasshopper: apply 2 fl. oz. per acre

When most infesting grasshoppers have reached the 2nd and 3rd nymphal stage of development, Cavalier 2L should be applied. For effective control, apply before grasshoppers reach the adult stage.

IMPORTANT

- Due to the distinctive mode of action of Cavalier 2L, it could take up to 5 to 7 days following application to show first signs of control (populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting)
- If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper population soon enough to minimize extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.
- Maximum number of applications per season is 3
- Maximum amount of product per acre is 24 fl. oz. per season
- Pre-harvest interval is 28 days

PEPPER – Bell and Non-Bell

Application Instructions

Cavalier 2L can be applied aerially, in 3 to 10 gallons (total volume) per acre, or by ground application, in a minimum of 30 gallons (total volume) per acre. Make sure that application volume is sufficient for adequate coverage.

Adjuvants: see COTTON section.

Application Rate

Apply 4 to 8 fl. oz. per acre

Pepper Weevil - Make application when pepper plants begin to flower. For more thorough coverage of expanding fruit and new foliage, Cavalier 2L can be reapplied every 7 days (note – do not exceed seasonal application rate of 24 fl. oz. product per acre). For moderate to heavy infestations, use higher rate. Cavalier 2L does not control adult pepper weevils, but adult contact or consumption of Cavalier 2L will bring about reduced hatching of eggs from these adults.

Armyworm (Beet, Fall Southern) and other Lepidopteran insects that feed on pepper foliage:

For control of armyworms and to lessen damage to fruit and leaves, make application when armyworm larvae are small. For more thorough coverage of expanding fruit and new foliage, Cavalier 2L can be reapplied every 7 days (note – do not exceed seasonal application rate of 24 fl. oz. Cavalier 2L per acre). For heavy infestations, or if product is applied alone, use higher rate.

Tank Mixes: If presence of late instar larvae are detected, tank mix Cavalier 2L with an insecticide that provides insect knockdown. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

IMPORTANT

- Maximum amount of product per season is 24 fl. oz. per acre
- Maximum amount of applications per season is 5
- Pre harvest interval is 7 days
- Due to the distinctive mode of action of Cavalier 2L, it could take up to 5 to 7 days following application to show first signs of control (populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting)

RICE

Application Rate and Instructions

Apply Cavalier 2L aerially, in at least 5 gallons total volume per acre.

Rice Water Weevil:

When adults have reached an economic threshold or begin laying eggs, application of Cavalier 2L will control rice weevil larvae. Local extension service or university experts can advise regarding egg laying and economic threshold. Use the rates indicated below:

- California – Make one 8 to 16 fl. oz. per acre application (for historically high infestations, use 12-16 fl. oz. rate). Apply to rice in CA when rice is at 2 to 4 leaf stage, typically 2-5 days after rice emerges above water.
- Southern U. S. Rice Belt – water seeded, pinpoint flood or continuous flood rice – Apply 8 fl. oz. per acre application (typically when rice leaves have emerged above water). Make second 8 fl. oz. application 5 to 7 days later. [NOTE – not making second application in indicated time frame could lead to unsatisfactory control, particularly for higher infestations or prolonged migration]
- Southern U. S. Rice Belt – drill seeded, dry seeded or water seeded delayed flood rice – Make one 12 to 16 fl. oz. per acre application (for historically high infestations, or prolonged migration of weevils into rice field, use higher application rate). Apply to rice 2 to 5 days after permanent flood establishment.

For optimum results, wait 7 days to disturb flood after single application, and for split application, wait 4 days to disturb flood after first treatment and 7 days to disturb flood after second treatment.

Tank Mixes: Cavalier 2L can be tank mixed with rice post permanent flood herbicides, such as those containing the active ingredient quinclorac, triclopyr or bensulfuron methyl, as it does not exhibit any phytotoxicity to rice. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

IMPORTANT

- Preharvest interval is 80 days
- To avoid decreased activity, apply Cavalier 2L when field flooding is not in progress
- Treat entire field with Cavalier 2L (do not try to treat specific sections of rice field)
- Not for use on wild rice (*Zizania* spp.)
- Granular material treated with Cavalier 2L cannot be used in rice
- Cavalier 2L should not be used around crayfish (crawfish):
 - Do not use on rice fields that are also used for crayfish farming
 - Do not use on rice fields that are directly next to sites of crayfish farming
 - Do not drain treated water onto fields where crayfish are farmed
- Floodwaters from treated rice are only to be used to irrigate crops listed on Cavalier 2L's label.
- Retain treated floodwaters at least 14 days, to give Cavalier 2L time to dissipate
- Cavalier 2L does not control adult weevils directly, adults feeding on treated plants will not lay viable eggs
- Cavalier 2L prevents larvae from hatching, and controls eggs laid under water treated with Cavalier 2L

SOYBEANS (Except California)

Application Instructions

Cavalier 2L can be applied aerially, in 3 to 5 gallons water per acre, or by ground application, in 9 to 35 gallons water per acre. Make sure that application volume is sufficient for uniform coverage.

Adjuvants: See COTTON section.

Application Rate

Velvet Bean Caterpillar, Mexican Bean Beetle, Green Cloverworm: apply 2-4 fl. oz. per acre

For lower insect damage and optimum control, apply when larvae are small (less than 1/2 inch). Cavalier 2L can be reapplied if necessary, to control reappearance of damaging numbers of pests, after an application interval of 30 days. When soybean pod formation has begun, after vegetative growth is complete, Cavalier 2L applied at the lower rate (2 fl. oz.) can prevent velvetbean caterpillar buildup.

Beet Armyworm, Fall Armyworm, Soybean Looper (suppression): apply 4 fl. oz. per acre

For optimum control, apply before populations build, and when worms are small in size.

Grasshopper: apply 2 fl. oz. per acre

When most infesting grasshoppers have reached the 2nd and 3rd nymphal stage of development, Cavalier 2L should be applied. For effective control, apply before grasshoppers reach the adult stage.

Tank Mix: Apply Cavalier 2L tank mixed with a knockdown insecticide if soybean fields experience a large grasshopper population incursion from adjacent and nearby fields, to reduce extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

Soybean yield enhancement: Cavalier 2L can increase soybean seed yield in both determinate and indeterminate cultivars, under certain growing conditions, and LOW insect pressure. Making application of Cavalier 2L at 2 to 4 fl. oz., at the R3 (beginning of pod growth – fully developed leaf with pod of 3/16 inches in length on main stem uppermost node) or R3.5 (pod almost fully elongated – fully developed leaf with pod ¼ inches in length on main stem uppermost nodes) growth stages will result in most consistent yield increase.

IMPORTANT

- Do not use on soybeans in the State of California
- Due to the distinctive mode of action of Cavalier 2L, it could take up to 5 to 7 days following application to show first signs of control (populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting)
- Maximum number of applications per season is 2
- Pre-harvest interval is 21 days

TURFGRASS (for use on sod farms only)

Application Instructions

Cavalier 2L can be applied in 20 to 50 gallons of water per acre. Use higher volume of water for greater insect pressure or dense foliage.

Application Rate

Armyworms (Fall, True, Southern Beet, Yellow-striped), Sod Webworm, Striped Grass Looper, Graculate Cutworm and other Lepidopteran foliage-feeding caterpillars:

Apply 2 fl. oz. per acre

Make application while caterpillar larvae are small (less than ½ inch long, prior to reaching fourth instar growth stage), and at first sign of hatch out. Populations will be decreased once larvae consume Cavalier 2L and undergo molting.

IMPORTANT

- Maximum amount of applications per year is 4

ORCHARD CROPS

ORANGE, GRAPEFRUIT, TANGERINE, PUMMELO and their hybrids

Application Instructions

Cavalier 2L can be applied aerially, in 5 to 20 gallons (total volume) per acre, or by ground application, in 50 to 100 gallons (total volume) per acre. Make sure that application volume is sufficient for uniform coverage. Optimum results on the largest range of pests will be gained from applying Cavalier 2L when new flush is emerging and/or present, however product can be applied to citrus at any time of the year.

Application Rate

For all citrus pests, apply Cavalier 2L at a rate of 20 fl. oz. per acre.

Asian Citrus Psyllid (*Diaphonia citri*)

Make application when Asian Citrus Psyllid (ACP) oviposition is seen or expected, when early feather leaf flush is present, or when leaf distortion is evident.

To maximize coverage of the entire leaf flush, make split application by spraying half of volume of product (10 fl. oz. per acre) as indicated above (oviposition seen or expected, early-feather leaf flush is present, leaf distortion is evident), and the other half (10 fl. oz. per acre) to protect new growth flush, as needed. Wait at least 90 days for subsequent applications of Cavalier 2L.

Citrus Rust Mite (*Phyllocoptruta oleivora*)

Make application when Citrus rust mites (CRM) are first observed on fruit or leaves.

For CRM control programs, rotate to an insecticide with a different mode of action before applying Cavalier 2L. Activity of Cavalier 2L on CRM is on immature stages, with most activity on late-instar CRM and may not reach full effect for up to 14 days after application.

Lepidopterous Miners: Citrus Leafminer (*Phyllocnistis citrella*)

Make application when Citrus Leafminer (CLM) oviposition is seen or expected, when leaf flush is present and oldest leaf is expanded by one-quarter, or when leaf mining is evident.

To maximize coverage of the entire leaf flush, make split application by spraying half of volume of product (10 fl. oz. per acre) as indicated above (oviposition seen or expected, leaf flush is present, leaf distortion is evident), and the other half (10 fl. oz. per acre) to protect new growth flush, as needed. Wait at least 90 days for subsequent applications of Cavalier 2L.

Lepidopterous Miners: Citrus Peel Miner (*Marmara* spp.)

Make application when citrus peel surfaces show Citrus peel miner (CPM) oviposition, or when expected.

To maximize coverage of the fruit surface, make split application by spraying half volume of product (10 fl. oz. per acre) when CPM oviposition begins, and the other half (10 fl. oz. per acre) to protect expanded fruit growth, as needed. Wait at least 90 days for subsequent applications of Cavalier 2L. Protection from CPM larvae will lessen over time as fruit expands and new, unprotected tissue develops, but may last up to several weeks.

Citrus Root Weevil Complex: West Indian Sugarcane Rootstalk Borer Weevil (*Diaprepes abbreviatus*), Southern Blue-Green Citrus Root Weevil (*Pachnaeus litus*), Blue-Green Citrus Weevil (*Pachnaeus opalus*) Fuller Rose Beetle (*Asynonychus godmani*), Little Leaf Notcher (*Artipus flondanus*)

Make application to citrus leaf flush when Citrus root weevils (CRW) are seen, when oldest leaf is expanded by one-half, or when recent leaf feeding is evident.

Katydid, Grasshoppers:

Make application when katydids or grasshoppers are seen, or recent feeding on leaves or fruit is noticed.

To maximize coverage and protection of leaves and fruit, make split application by spraying half of volume of product (10 fl. oz. per acre) as indicated above (katydids or grasshoppers are seen, recent feeding on leaves or fruit), and the other half (10 fl. oz. per acre) to protect new growth, as needed. Wait at least 90 days for subsequent applications of Cavalier 2L.

Adjuvants - To enhance spray coverage, add a petroleum spray oil, such as FC435-66. Addition of a spray oil also aids knockdown of existing populations (CRM), penetration or absorption of Cavalier 2L into immature stages of insects², mines³, eggs^{1,3,4,5,6,7}, larvae³, pupae³, nymphs^{1,6,7} and adults^{1,6,7}. A spray oil improves Cavalier 2L's activity, which is to prevent eggs from hatching, larvae or nymphs from molting, moths from emerging from pupae, and limiting eggs laid or able to hatch by adult females when exposed to Cavalier 2L through contact, ingestion and/or absorption. Spray oil also limits egg mass attachment to citrus leaf surface³.

- | | |
|--------------------------------|-----------------------|
| 1 – Asian Citrus Psyllid | 2 – Citrus Rust Mite |
| 3 – Citrus Leafminer | 4 – Citrus Peel Miner |
| 5 – Citrus Root Weevil Complex | 6 – Katydid |
| 7 – Grasshopper | |

IMPORTANT:

- Application of Cavalier 2L when new citrus flush has emerged will give best control of the most pests, however it can be applied anytime during the year
- **Ground Application:** Do not apply within 25 feet of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries. **In the State of Florida**, do not apply within 100 feet of estuarine/marine bodies of water. Spray last three rows windward of surface water using nozzles on one side only, with spray directed away from surface water. Avoid spray going over tops of trees by adjusting or turning off top nozzles. Shut off nozzles on one side away from the grove when spraying the outside row. Shut off nozzles when turning at ends of rows and passing tree gaps in rows.
- **Aerial Application:** Do not apply within 150 feet of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries. **In the State of Florida**, do not apply within 1000 feet of estuarine/marine bodies of water.
- Maximum amount of product per acre is 60 fl. oz. per year
- Pre-harvest interval is 21 days.
- Wait a minimum of 90 days for repeat application (except when making split applications, as per instructions, above)
- Cavalier 2L affects existing ACP, CLM and citrus root weevil populations by diminishing their reproductive ability.
- Cavalier 2L does not control the following insect growth stages:
 - Adult Asian citrus psyllid, citrus root weevils, katydids or grasshoppers
 - Adult Citrus Rust mite or Citrus rust mite eggs
 - Citrus Leafminer or Citrus peel miner moths

PEAR

Application Instructions

Apply Cavalier 2L in a minimum of 80 to 400 gallons of water per acre. Make sure that application volume is sufficient for uniform coverage.

Application Rate

Pear Psylla, Pear Rust Mite (pre-bloom) – apply 40 – 48 fl. oz. per acre

Make application any time from delayed dormant period to white bud, or 'popcorn,' stage of growth, and during the deposition of pear psylla eggs so that Cavalier 2L contacts eggs and/or 1st and 2nd instar nymphs. Make sure tree is completely and uniformly covered with spray for optimum insect control.

Additives: During delayed dormant period, apply Cavalier 2L with 4 to 6 gallons per acre of a horticultural mineral oil. When applying during other growth periods, through the white bud, or 'popcorn,' stage, apply Cavalier 2L with 0.25% horticultural oil (maximum of 1 gallon horticultural oil per acre). Additionally, coverage can be enhanced with the use of a surfactant (follow surfactant label instructions).

Codling Moth, suppression of **Pear Psylla** (post bloom) – apply 12 to 16 fl. oz. per acre

Make application as soon as possible after first codling moths are observed or caught (biofix), or about 50-75 degree days after biofix. Cavalier 2L prohibits hatching of codling moth eggs, and must be applied to trees before eggs are laid, so that laid eggs are deposited on treated surfaces. Make sure that entire tree surface, including fruit and foliage is treated with Cavalier 2L. If codling moth pressure is light, or if pear trees are small, use lower rate. Timing of application is extremely important. Timing can be determined by local fruit specialist or pest control consultant, by employing the use of pheromone traps. Typically the optimum time for application will occur around 10 – 14 days prior to application of an organophosphate insecticide, or around late petal fall.

A second application of Cavalier 2L should be applied 14 – 18 days after initial application.

If necessary (prior to egg laying of 2nd generation, as determined by timing indicated above, for 1st generation), a third and fourth application can be made. If the use of pheromone traps are not employed, the third application should be made 21-30 days after the 2nd, or 1000 degree days after biofix. The fourth application should be made 21-30 days after the third.

Tank Mixes: For more effective control of moderate to heavy codling moth infestations, when treating large trees, or for optimum timing of Cavalier 2L spray (to save a trip through the orchard), Cavalier 2L can be combined with organophosphate insecticides. Apply at the normal time for the first organophosphate cover spray, which occurs at the beginning of egg hatch (250 degree days following biofix for 1st generation, or 1250 degree days following biofix for 2nd generation). Application of this tank mixture can be repeated for 2nd and 3rd generations of codling moth, or Cavalier 2L alone can be used prior to egg laying. For late season control, oil should not be used in the tank mix. When codling moth populations are low, an organophosphate / Cavalier 2L mixture could control an entire generation with 1 application. For heavy populations, this combination of Cavalier 2L/organophosphate may not control the entire generation with one spray. In that case apply a second spray 14 – 18 days later of Cavalier 2L alone or in combination with an organophosphate, so that eggs laid after insecticide application will be residually controlled. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

Leafminer – apply 8 to 16 fl. oz. per acre

For control of leafminer larvae and eggs, make application during or just before eggs are laid. Fruit specialist or local pest control consultant can advise about timing for control of 1st or 2nd generations of leafminer. Cavalier 2L can also be applied for control of later generations. For control through early sap feeding stage, Cavalier 2L should be applied prior to egg laying. For control of leafminer larvae throughout the sap feeding stage, make sure that foliage is completely covered.

IMPORTANT

- Using oil with Cavalier 2L could cause certain pear varieties to display injury. Local fruit tree specialists can advise on compatibility of oil mixtures.
- Do not use oil with Cavalier 2L for late season (3rd and 4th) applications.
- Maximum number of applications per year is 4
- Maximum amount of product per season is 64 fl. oz. per acre
- Pre harvest interval is 14 days.

STONEFRUIT (excluding cherries)

Includes: Apricot, Nectarine, Peach, Plum, Prune

Application Instructions

Apply Cavalier 2L by ground in a minimum of 50 gallons of water for trees up to 10 feet tall and a minimum of 100 gallons of water for larger trees. For optimal results, use enough water for sufficient coverage and make sure that canopy is evenly and thoroughly covered.

Application Rate

Peach Twig Borer: apply 12 – 16 fl. oz. per acre (use higher rate for orchard with a history of heavy infestations)

Dormant / delayed dormant application: apply with a narrow range oil (4 to 6 gallons per acre or 1.5 to 2.0 gallons per 100 gallons spray volume in a dilute spray).

Bloom application: Application can be made with a vegetable oil (1 qt. per acre), with application starting at early bloom.

Leafroller (Filbert, Oblique Banded, Omniverous, Variegated), Moth (Oriental Fruit, Winter), Fall Webworm, Walnut Caterpillar: apply 8 – 16 fl. oz. per acre.

Make application when insect larvae are first observed. The higher use rate will give longer residual control. It should also be used if foliage is heavy or dense, if pest infestations are high, or if trees are larger or crop load is low.

Grasshoppers, Katydids (for use in **Peach Orchards in GA ONLY**): Apply 2 fl. oz. per acre

Make application to peach orchards or surrounding vegetation when immature insects are first observed. The higher use rate should be used if foliage is heavy or dense, if pest infestations are high, if trees are larger, or for longer residual control. Larvae and nymphs could take up to 5 to 7 days following application to show visible effects, due to the distinctive mode of action of Cavalier 2L.

Cavalier 2L will not control adult grasshoppers. If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper populations soon enough to minimize extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statement, directions for use, rates and timings, and other restrictions.

IMPORTANT:

- Maximum amount of product per year is 32 fl. oz. per acre (16 fl. oz. when applied to grasshoppers and katydids in peach orchards in GA only)
- Maximum amount of applications per year is 2 (or when applied to grasshoppers or katydids in peach orchards in GA only, as needed, up to application of 16 fl. oz per acre)
- Wait a minimum of 21 days between Cavalier 2L applications
- Cavalier 2L is not to be applied to stonefruit after petal fall (with the exception of applications to grasshoppers or katydids in peach orchards in GA only)
- Preharvest interval for use on grasshoppers or katydids in peach orchards in GA is 14 days.

TREE NUTS GROUP

(includes Almond, Beech nut, Brazil nut, Butternut, Chestnut, Chinquapin, Filbert (hazelnut), Hickory nut, Macadamia nut (bush nut), Pecan, Pistachio, Walnut (Black and English))

Application Instructions

Apply Cavalier 2L by ground in a minimum of 50 gallons of water for trees up to 10 feet tall and a minimum of 100 – 300 gallons of water for larger trees. For optimal results, use enough water for sufficient coverage and make sure that canopy is evenly and thoroughly covered.

Application Rate

Filbert Worm: apply 12 – 16 fl. oz. per acre

Apply Cavalier 2L before eggs are laid on treated foliage, or when moths first emerge from cocoon – if using pheromone detection traps, 2 to 3 days after first moth catch [mating takes place soon after emergence and egg laying begins the following day]. Make sure that tree and foliage coverage is uniform for best control. Use lower rate if trees are small or worm pressure is low. Use higher rate if trees are larger, or worm pressure is moderate to high. If necessary (continuing high moth pressure), a subsequent application of Cavalier 2L should be made.

Hickory Shuckworm: apply 8 – 16 fl. oz. per acre

Split Application – for optimum control, apply 4 to 8 fl. oz. Cavalier 2L when larvae begin to feed or when hickory shuckworm moth emerges; make second 4 to 8 fl. oz. application two weeks later.

Cavalier 2L can also be applied at half-shell hardening, with additional applications 21 days later, up to shuck split, or while heavy insect infestations are present. Use the higher rate on heavy, dense foliage, on larger trees or low crop load, or under higher pest infestations.

Codling Moth– apply 16 fl. oz. per acre

For optimum control, apply prior to egg laying. Apply a full coverage spray to orchard so that eggs are laid on a surface that is treated with Cavalier 2L.

Apply when first moths hatch (determine by moth flight or pheromone traps). Following application should be made 21 days later. This timing is appropriate for first or second generation (brood).

Tank Mixing – Cavalier 2L can be tank mixed with an organophosphate insecticide at its lowest label rate to control extended populations of codling moth because of variations in emergence time due to temperature fluctuations or overwintering. Application should occur at normal timeframe for an organophosphate insecticide. Additionally, if Cavalier 2L is not initially applied prior to egg laying, then tank mixing with an organophosphate insecticide as indicated above will enhance control. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

Peach Twig Borer – apply 12 – 16 fl. oz. per acre (use higher rate for orchards with a history of heavy infestations)

Dormant / delayed dormant application: apply with a narrow range oil (4 to 6 gallons per acre or 1.5 to 2.0 gallons per 100 gallons spray volume in a dilute spray).

Bloom application: Application can be made with a vegetable oil (1 qt. per acre), with application starting at early bloom.

Spring Flight ('May Spray') or Summer Flight – Apply Cavalier 2L at initial flight activity (as determined by pheromone traps).

Pecan Nut Case-Bearer: apply 8 – 16 fl. oz. per acre

Apply Cavalier 2L as a split application as indicated:

- For optimum control and best nut set, apply first application of 4 – 8 fl. oz. at bud break and second application 14 days later [in southeastern U. S., bud break would typically occur in mid-April]
- For control of adult generations and to target egg hatch, make first application of 4 – 8 fl. oz. 8 to 15 days following biofix (threshold is reached when 5 moths are captured in 3 pheromone traps in a 7 day period)

Local extension service or university experts may have different or additional recommendations regarding Cavalier 2L application. Consult them prior to use. Use the higher rate on heavy, dense foliage, on larger trees or low crop load, or under higher pest infestations.

Pecan Weevil (suppression): apply 8 – 16 fl. oz. per acre

Use the higher rate for moderate to heavy infestations, or if weevils are attacking crop.

Leafroller (Filbert, Oblique Banded, Omniverous, Variegated), Moth (Oriental Fruit, Winter), Fall Webworm, Omniverous Leaf-tier, Caterpillar (Redhumped, Walnut): apply 8 – 16 fl. oz. per acre

Make application as soon as larval infestations are detected. Use the higher rate on heavy, dense foliage, on larger trees or low crop load, or under higher pest infestations.

Tent Caterpillar (for use in almonds, pecans, pistachios and walnuts (black and English)).

Apply 8 – 16 fl. oz. per acre

Make application as soon as larval infestations are detected. Use the higher rate on heavy, dense foliage, on larger trees or low crop load, or under higher pest infestations.

IMPORTANT

- Pre-harvest interval is 28 days
- Maximum amount of product per growing season is 64 fl. oz. per acre
- Maximum amount of applications per year is 4 (3 for walnuts)
- If four applications are made to tree nuts, the timing should correspond to:
 - Dormant to pre-bud swell
 - Bloom to petal fall
 - Flowers/leaves/immature nut fruit formation
 - Hull split

NON-CROP USES

LIVESTOCK AND POULTRY PREMISES

Including barns, dairies, equine facilities, farms, farm buildings, feedlots, poultry houses and other production facilities. Cavalier 2L application can be made to feed troughs, feed bunks, fence lines of holding pens, hay bale feeders, water troughs and waste retention ponds (marginal areas of), and Cavalier 2L can control insects on/around bedding material, cage frames, ceilings, feed muck/spoilage, floors, litter, manure, manure/straw mixtures, posts, spoiled organic refuse, stale/waste feed and walls / wall footings.

Application Instructions and Rate

Carrion Beetle, Darkling Beetle, Hide Beetle (Except California):

Apply 12 fl. oz. Cavalier 2L in 2 to 20 gallons of water per 1000 ft²

Broadcast – Cavalier 2L can be applied as a broadcast spray to the whole facility, including the following areas: walls, posts and cage frames (at least 1 foot up from floor); cracks and crevices around insulation; litter following de-caking (making sure to thoroughly treat areas under water and feed lines). Make sure spray volume (which will be dependent on litter depth) is sufficient to completely and uniformly wet litter and other surfaces.

Banded Application – Cavalier 2L can be applied only where pests congregate, including along perimeter walls and side and end walks, and under water and feed lines. Make sure spray volume (which will be dependent on litter depth) is sufficient to completely and uniformly wet litter and other surfaces, in a 2-4 foot wide band under, around and next to target areas. If lower sections of walls, posts and cage frames are treated, make sure to apply product at least 1 foot up from floor.

Flies (including House, Stable, Face, Horn)

Broadcast - Apply 12 fl. oz. Cavalier 2L in 2 to 20 gallons of water per 1000 ft²

Cavalier 2L can be applied as a broadcast spray to the whole facility, including the following areas: walls, posts and cage frames (at least 1 foot up from floor); cracks and crevices around insulation; litter following de-caking (making sure to thoroughly treat moist areas and areas under water and feed lines). Make sure spray volume (which will be dependent on litter depth) is sufficient to completely and uniformly wet litter and other surfaces.

Spot Treatment – Apply 5 fl. oz. Cavalier 2L in 10 gallons of water

Make a directed spray application when flies first appear. 1 quart of spray solution should be applied to 10 ft² of surface (10 gallons spray solution treat 400 ft²). Repeat applications can be made when fly numbers begin to increase – usually within 14 to 21 days.

IMPORTANT

- Do not apply this product for control of Carrion Beetle, Darkling Beetle or Hide Beetle in the State of California.
- Application is not to be made directly to livestock or poultry
- Feed or water is not to be contaminated by application of Cavalier 2L; exposed feed or water is to be covered or removed from treatment area.
- Cavalier 2L provides extended control of eggs and developing larvae, but not pupal or adult stages of insects; contact or ingestion of Cavalier 2L by adults will adversely affect number of and viability of eggs.
- If a large population of adult insects is present, applying a knockdown insecticide (either alone or tank mixed with Cavalier 2L) is recommended for quick decrease of population. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.
- If controlling insects around hay feeding sites, make product application around entire soil surface where livestock activity mixes the waste hay and manure

GRASSLAND

For control in grassland, including rangeland, pastures, improved pastures and similar areas used for production of native, domesticated forage grasses for harvest for livestock primarily for grazing or mechanical harvest, grasses/forages/cellulosic crops grown for biofuel, biomass or bioenergy production, including switchgrass, miscanthus sp., etc.

Application Instructions

Cavalier 2L may be applied aerially (high or low volume application) in 2 to 5 gallons water per acre, or by ground application (low or high volume) in 2 to 30 gallons of water per acre. For rangeland ULV (aerial or ground), apply in a minimum of 12 fl. oz. total volume per acre. Make sure that target crop is completely covered.

Adjuvants and Additives: For aerial and ULV application, especially when high air temperature or low humidity favor evaporation, add a product that retards evaporation and drift to the spray mixture. If this product is oil-based, mix 1 part oil to at least 2 parts water.

Application Rate

2 fl. oz. per acre

Horn Fly, Face Fly

Make application to cow manure patties. Cavalier 2L will provide at least 14 days of control of flies emerging from cow manure.

Fall Armyworm, Striped Grass Looper, other Lepidopteran foliage feeding caterpillars

Make application while caterpillar larvae are small (less than ½ inch long, prior to reaching fourth instar growth stage), and at first sign of hatch out. Populations will be decreased once larvae consume Cavalier 2L and undergo molting.

Grasshopper, Mormon Cricket

- Make one application at 1 to 2 fl. oz. per acre on grasshoppers or Mormon crickets at early instar growth stages (i.e., 2nd through 4th instar nymphal stages). A second application, at 0.5 to 1 fl. oz. per acre can be made 14 to 21 days after first application. For application on pastureland, use higher use rate.
- For RAAT (Reduced Area and Agent Treatment*) application on early instars in rangeland only; apply 0.75 to 1 fl. oz. per acre. Use lower rate, and skip up to 50% of the infested area (i.e., for every 100 feet

treated, skip the next 100 ft. swath) if most of infestation is at early instar growth stage, vegetation is sparse, and topography is uniform. Use higher rate and 100% coverage if most of the infestation is at a late instar growth stage, vegetation is dense, terrain is rough and/or application is being made when temperature is high. A second application, at 0.5 to 1 fl. oz. per acre can be made 14 to 21 days after first application.

* A RAAT application is a grasshopper IPM program that takes advantage of the grasshopper's natural tendency to move as they feed. As grasshoppers move from untreated to treated areas and eat foliage treated with Cavalier 2L, they are killed once molting occurs. The rate of Cavalier 2L is lowered and applied in alternating treated and untreated strips. A RAAT treatment reduces application cost, giving ranchers a cost effective way to control grasshoppers or Mormon crickets on their rangeland, depending on severity of infestation, insect growth stage and density of vegetation.

If treated areas have a dense canopy, if nymphs have passed the third instar growth stage, and/or if temperature and climate encourage insect survival and proliferation, use higher rates of Cavalier 2L. Cavalier 2L should be applied after egg hatch, through early instar growth stages, as it will not control the adult stages of these insects. Cavalier 2L's residual activity will continue to control larvae later in the season.

Tank Mix: Apply Cavalier 2L tank mixed with a knockdown insecticide or grasshopper adulticide if adults are present (due to overwintering or early hatching) to reduce extensive foliage feeding. Make sure tank mix partners are compatible prior to mixing and adding to main spray tank. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

IMPORTANT

- Maximum amount of product per cutting is 2 fl. oz. per acre
- Maximum amount of product per year is 6 fl. oz. per acre
- Wait at least 1 day following Cavalier 2L application prior to cutting grass.
- Apply when possibility of drift to sensitive areas (residential, non-target crops, water bodies, threatened or endangered species habitat) is small.
- For low volume and ULV applications, continue constant agitation while mixing and applying Cavalier 2L, and make sure the appropriate concentration of Cavalier 2L is mixed in the boom before application begins.
- Due to the distinctive mode of action of Cavalier 2L, it could take up to 5 to 7 days following application to show first signs of control (populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting)
- In response to treatment with Cavalier 2L, Mormon crickets could exhibit structural deformities (such as malformed abdominal segments, twisted antennae, wrinkled wings, missing posterior legs, hernias, hemolymph exudation). This could result in behaviors (such as inability to fly, limited jumps and unsteady landings, slower movement, reduction in feeding) which cause the nymphs or adults to be more vulnerable to predators (birds, mammals or other insects)

NON-CROP AREAS

Including field border, fence rows, roadsides, farmsteads, ditchbanks, wasteland, Conservation Reserve Program (CRP) land

Application Instructions

Cavalier 2L may be applied aerially (high or low volume application) in 2 to 5 gallons water per acre, or by ground application (low or high volume) in 2 to 30 gallons of water per acre.

For additional Application Instructions, see Grassland Directions for Use.

Application Rate

2 fl. oz. per acre

Grasshopper, Mormon Cricket

Insects can be managed in their breeding areas prior to migration into cropland or other undesirable areas with application of Cavalier 2L.

See Grassland Directions for Use for additional instructions and application information.

Fall Armyworm, Striped Grass Looper and other Lepidopteran foliage-feeding caterpillars

Make application while caterpillar larvae are small (less than ½ inch long, prior to reaching fourth instar growth stage), and at first sign of hatch out. Populations will be decreased once larvae consume Cavalier 2L and undergo molting.

IMPORTANT

- Maximum amount of product per application is 2 fl. oz. per acre
- Maximum amount of product applied per year is 6 fl. oz. per acre

See Grassland Directions for Use for other restrictions and comments

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

PESTICIDE STORAGE: Store product in its original labeled container only.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER HANDLING

Plastic containers: Nonrefillable container. Do not reuse or refill this container. Triple rinse or pressure rinse (or equivalent) promptly after emptying.

Triple rinse as follows: For containers small enough to shake: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. For containers too large to shake: Empty remaining contents into a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the rinsate into a mix tank and store for later use or disposal. Repeat the procedure two more times.

Pressure rinse as follows: Empty the remaining contents into a mix tank and continue to drain for 10 seconds after the flow continues to drip. Hold container upside down over mix tank to collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Then offer container for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Recycling: Once cleaned, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. To find the nearest site, contact your chemical dealer or manufacturer or contact Ag Container Recycling Council (ACRC) at 1-877-952-2272 (toll free) or www.acrecycle.org.

LIMITED WARRANTY

Raymat Crop Science, Inc. warrants only that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the label, under average use conditions, when used strictly in accordance with the label and subject to the Risks of Using This product as described above. To the extent consistent with applicable law AND AS SET FORTH ABOVE, RAYMAT CROP SCIENCES, INC. MAKES NO OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED. No agent or representative of Raymat Crop Sciences or Seller is authorized to make or create any other express or implied warranty.

LIMITATION OF LIABILITY

To the fullest extent allowed by law, Raymat Crop Sciences, Inc., or Seller is not liable for any incidental, consequential, indirect or special damages resulting from the use or handling of this product. The limitation includes, but is not limited to, loss of yield on all or any portion of the treated acreage, increased care, treatment or other expenses required to take the crop to harvest, increased finance charges or altered finance ratings, emotional or mental distress and/or exemplary damages. TO THE FULLEST EXTENT ALLOWED BY LAW, THE EXCLUSIVE REMEDY OF THE BUYER, AND THE EXCLUSIVE MAXIMUM LIABILITY OF RAYMAT CROP SCIENCES, INC. OR SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR

DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT SHALL BE THE RETURN OF THE PURCHASE PRICE OF THIS PRODUCT OR, AT THE ELECTION OF RAYMAT CROP SCIENCES, INC OR SELLER, THE REPLACEMENT OF THE PRODUCT.

PROMPT NOTICE OF CLAIM

To the extent consistent with applicable law allowing such requirements Raymat Crop Science, Inc. must be provided notice as soon as Buyer has reason to believe it may have a claim, but in no event later than twenty-one days from the date of application, whichever is later, so that an immediate inspection of the affected property and growing crops can be made.

To the extent consistent with applicable law if Buyer does not notify Raymat Crop Sciences, LLC of any claims in such period, it shall be barred from obtaining any remedy.

NO AMENDMENTS

Raymat Crop Sciences, Inc. and Seller offer this product, and Buyer accepts it, subject to the foregoing Disclaimer, Risks of Using This product, Limited Warranty and Limitation of Liability, which may not be modified by any oral or written agreement.

EPA 20130822

Raymat Crop Science, Inc.

440 Boulder CT., Suite 300, Pleasanton, CA 94566 USA
Tel. 510-579-7685, Fax. 925-249-9989

Dec. 3, 2012

To Whom It May Concern:

RE: Letter of Authorization

Dear Sir or Madam:

Please let this letter serve to confirm that Pyxis Regulatory Consulting, Inc. is authorized to act as agents for Raymat Crop Science, Inc. (EPA company number pending), before the U.S. Environmental Protection Agency and state governmental agencies in all matters regarding our pesticide registrations pursuant to the Federal Insecticide, Fungicide and Rodenticide Act ("FIFRA"), 7 U.S.C. § 136 et seq. and state law.

If you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jibing Lin', with a stylized flourish at the end.

Jibing Lin, Ph. D, President
Raymat Crop Science, Inc.

cc: Pyxis Regulatory Consulting, Inc.

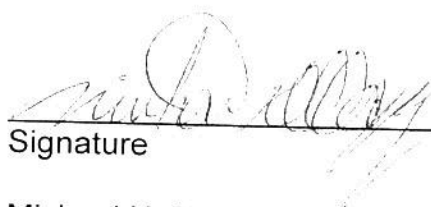
Certification with Respect to Label Integrity

version: 9/11/02

I certify that the information (including, but not limited to, text, tables, and graphics) contained in the electronic file identified below by file name and submitted with this certification is the same information as that on the paper copies of these documents included with this submission.

PROPOSED LABEL		
EPA Registration #	Date Submitted to EPA	Electronic file name
89799-1	August 22, 2013	089799-00001.20130822.Cavalier 2L label.PDF

I certify that the statements that I have made on this form are true, accurate, and complete. I acknowledge that any knowingly false or misleading statements may be punishable by fine or imprisonment or both under applicable law.


Signature

August 22, 2013
Date

Michael Kellogg
Name (typed)

Agent
Title

Material to be added to an e-Jacket/Jacket

Reg. No. 89 799-1

Description: _____

1. ☐ Placement within the e-Jacket/jacket:
- ☐ Default: (chronological, top = newest)
 - ☐ File Location: (PDF page number, i.e., "before page 45")
- _____
- _____

2. ☐ Send to Data Extraction contractors this material:

- ☒ Newly stamped accepted label
- ☐ Notification
- ☐ New CSF
- ☐ Other: _____

3. Attach this coversheet to the top of the material or jacket. It must be well organized and clipped together, NOT STAPLED. Then give the material with this coversheet to staff in the Information Services Center (Room S-4900).

Reviewer's Name: Sam Samie /

Phone: 703 505-5409 Division: RS

Date: June 27, 2013



U.S. ENVIRONMENTAL PROTECTION
AGENCY

Office of Pesticide Programs
Registration Division (7505P)
Ariel Rios Building
1200 Pennsylvania Ave., NW
Washington, D.C. 20460

EPA Reg. Number:

89799-1

Date of Issuance:

NOTICE OF PESTICIDE:

☒ Registration
☐ Reregistration
(under FIFRA, as amended)

Term of Issuance:

Conditional

Name of Pesticide Product:

Cavalier 2L

Name and Address of Registrant (include ZIP Code):

Ms. P. Leanne Pruett
Raymat Crop Science, Inc.
c/o Pyxis Regulatory Consulting, Inc.
4110 136th St., NW
Gig Harbor, WA 98332

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA sec. 3(c)(7)(A). You must:

1. Submit and/or cite all data required for registration/reregistration review of your product under FIFRA when the Agency requires all registrants of similar products to submit such data. You must comply with DIC ID# GDCI-108201-1286 issued on June 6, 2013. If you have questions about the Generic DCI issued, you may contact Steven Snyderman from the Pesticide Re-evaluation Division.
2. The data requirements for storage stability and corrosion characteristics (Guidelines 830.6317 and 830.6320) are not satisfied. A one year study is required to satisfy these data requirements. You have 18 months from the date of registration to provide these data. It is required that the observations be made at 0, 3, 6, 9, and 12 month intervals.

Signature of Approving Official:

John Hebert
Product Manager 07
Insecticide-Rodenticide Branch
Registration Division (7504P)

Date:

JUN 27 2013

Page Two

EPA Reg. No. 89799-1

3. Make the following label change before your release the product for shipment:

- Revise the EPA Registration Number to read, "EPA Reg. No. 89799-1.

4. Submit one copy of the revised final printed label for the record before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records. Please also note that the record for this product currently contains the following CSFs:

- Basic CSF 03/30/2013

If you have any questions, contact Dani Daniel at 703 305-5409 or daniel.dani@epa.gov.

Enclosure:

RESTRICTED USE PESTICIDE

Due to toxicity to aquatic invertebrate animals. For retail sale to and use only by Certified Applicators, or persons under their direct supervision, and only for those uses covered by the Certified Applicator's certification.

CAVALIER 2L

Insect Growth Regulator

Aqueous Flowable

For use on **field and row crops** (artichoke, barley, oats, triticale and wheat; cotton; leafy brassica and turnip greens; peanut; pepper; rice; soybean; turfgrass), **orchard crops** (oranges, grapefruit, tangerine and pummelo; pear; stonefruit (excluding cherries); tree nuts) and **non-crop uses** (livestock and poultry premises; grassland; non-crop areas)

ACTIVE INGREDIENT:

Diflubenzuron: [((4-Chlorophenyl)amino)carbonyl]-2,6-difluorobenzamide* 22.0%

OTHER INGREDIENTS: 78.0%

TOTAL: 100.0%

*Contains 2 lbs. diflubenzuron per gallon

KEEP OUT OF REACH OF CHILDREN CAUTION

FIRST AID	
IF SWALLOWED:	<ul style="list-style-type: none">• Call a poison control center or doctor immediately for treatment advice.• Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor.• Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none">• Take off contaminated clothing.• Rinse skin immediately with plenty of water for 15-20 minutes.• Call a poison control center or doctor for treatment advice.
IF INHALED:	<ul style="list-style-type: none">• Move person to fresh air.• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.• Call a poison control center or doctor for further treatment advice.
IF IN EYES:	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15-20 minutes.• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.• Call a poison control center or doctor for treatment advice.
HOT LINE NUMBER	
Have the Cavalier 2L container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact Chemtrec at 1-800-424-9300 for emergency medical information.	

EPA Reg. No. 89799-XX

EPA Est. No. XXXXX-XX-X

Manufactured for:

Raymat Crop Science, Inc.
440 Boulder Court, Suite 300
Pleasanton, CA 94566

Net Contents: _____ Gallon(s)

ACCEPTED
JUN 27 2013

Under the Federal Insecticide, Fungicide,
and Rodenticide Act, as amended, for the
pesticide registered under:

EPA. Reg. No: 89799-1

**PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION**

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for Category A on an EPA chemical-resistant selection chart.

Applicators and Other Handlers Must Wear: A long-sleeved shirt & long pants; chemical-resistant gloves, such as barrier laminate, nitrile rubber, neoprene rubber, natural rubber, polyethylene, PVC, or viton, when mixing and loading and also when using hand-held equipment; shoes plus socks.

Mixers and Loaders Using Fixed-Wing Aircraft Must Wear: A long-sleeved shirt and long pants; chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, PVC or viton; shoes plus socks; dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C or a NIOSH approved respirator with any R, P or HE filter).

Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems (including water soluble bags), enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of glove before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to terrestrial juvenile insects and aquatic invertebrates/mollusks/insects. Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment washwaters or rinsate.

**DIRECTIONS FOR USE
RESTRICTED USE PESTICIDE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- coveralls
- chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride
- shoes plus socks

INSTRUCTIONS AND INFORMATION

RUNOFF

Cavalier 2L has a potential for runoff, which can occur up to several months after use. Runoff containing this product is more likely to occur in soils that have shallow water tables or are poorly draining.

The following will decrease the likelihood of contaminating water from runoff:

- a well maintained, level vegetative buffer strip situated between application areas and surface water features (i.e., ponds, springs, streams)
- application of product avoided if forecasts predict rainfall within 48 hours
- practices that foster sound erosion control

SPRAY DRIFT LABELING

This product may contaminate water through drift or spray in wind. Avoiding spray drift at the application site is the responsibility of the applicator.

The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator is responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to ULV applications on grassland and non-crop areas, for the control of grasshoppers and Mormon crickets.

1. The distance of the outermost nozzles on the boom must not exceed $\frac{3}{4}$ the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.
3. Observe the regulations of the State where applications are made.
4. Applicators must observe and abide by the requirements of the Aerial Drift Reduction Advisory.

Information on Droplet Size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

Controlling Droplet Size

Volume – Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.

Pressure – Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use high flow rate nozzles instead of increasing the pressure.

Number of nozzles – Use the minimum number of nozzles that provide uniform coverage.

Nozzle Orientation – Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from the horizontal will reduce droplet size and increase drift potential.

Nozzle Type – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Boom Length - For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

Application Height - Applications should not be made at a height greater than 10 feet above the largest plants unless a greater height is required for aircraft safety. Making applications at the lower height that is safe reduced exposure of droplets to evaporation and wind.

Swath Adjustment - When applications are made with a cross-wind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for the displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

Wind - Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect drift.

Temperature and Humidity - When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are hot and dry.

Temperature Inversions - Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upwards and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas - The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

INFORMATION

Cavalier 2L is an insect growth regulator, whose unique mode of action disrupts the regular molting process of insect larvae. It is effective against Lepidoptera and Diptera species and a wide variety of other insect pests, and performs well when used in IPM programs.

RESTRICTIONS

- Cavalier 2L cannot be applied to water bodies where swimming is expected
- For Field Crops, Row Crops, Orchard Uses, Grassland, Non-crop Areas: Do not apply within 25 feet by ground or 150 feet by air of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries. All applications must include a 25 foot vegetative buffer strip within the buffer zone to decrease runoff.
- ROTATIONAL CROPS: Unless diflubenzuron is registered for use on a particular crop, wait one month after last application to plant food or feed crops in soils treated with Cavalier 2L.
- Due to distinctive mode of action, insects could take several days following application to show visible effects of Cavalier 2L.

APPLICATION INSTRUCTIONS

Mixing Directions – with water

- Fill a clean spray tank with half of the water required for treatment
- Begin agitation and add appropriate amount of Cavalier 2L to spray tank
- Add second half of water while maintaining agitation
- If adding oil, pour the appropriate amount slowly into the mixing tank. Making sure to use at least 2 parts of water to one part of oil will help avoid development of an invert emulsion

Mixing Directions – without water

Premix Cavalier 2L and other ingredients in a nurse tank before transferring into appropriate application equipment

-or-

- Fill a clean tank with appropriate amount of oil or oil-based insecticide
- Begin agitation and add appropriate amount of Cavalier 2L to spray tank
- Thoroughly mix contents of spray tank
- Drain a volume of carrier adequate to fill booms and piping system from the contents of the tank and then add back to tank

Compatibility – when combining Cavalier 2L with other pesticides, additives or adjuvants, test for compatibility and sprayability. In a lidded glass jar (~1 quart size), add all mix partners, in their relative proportions. Invert, shake or mix the jar thoroughly. Observe mixture for approximately 30 minutes (though signs of incompatibility will often be seen within 5 minutes). Read and follow the label of each tank mix Cavalier 2L used for precautionary statements, directions for use, rates and timings, and other restrictions.

Application – aerial or ground

Spray should be applied with equipment that gives uniform and complete coverage of the whole plant / crop surface. Equipment should be calibrated to deliver droplets of 150 to 220 microns in diameter. Continue constant agitation while mixing and applying Cavalier 2L.

Application – Chemigation

Cavalier 2L can be applied by chemigation in grassland and row crops. System should be properly equipped for insect control. Cavalier 2L can be applied only through sprinkler irrigation systems (center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move). Cavalier 2L cannot be applied through any other type of irrigation system. If treated water is not uniformly distributed, crop injury, illegal pesticide residues or lack of efficacy could occur.

In order to calibrate the irrigation system and injector to apply the mixture:

- Determine how many acres are irrigated by the chemigation system
- Once the irrigation rate has been set, determine how long (minutes) the system takes to cover the intended treatment area
- Determine the amount of mixture (total gallons) necessary to cover the desired acreage.
- Determine injector's gallon per minute rate by dividing amount of mixture (gallons) needed by time (minutes) to cover intended treatment area.
- Determine the correct ounces per minute rate (converting from gallons per minute)
- Operate system at desired irrigation rate and calibrate injector

It is suggested that the injector pump be calibrated at least twice before operation and the system be monitored during operation.

Your local extension service, university experts or equipment manufacturers or representatives can answer questions regarding calibration.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person shall shut the system down and make necessary adjustments should the need arise.

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

If the chemigation system is connected to a public water supply, the following conditions must also be met:

- 'Public water system' means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
- Chemigation systems connected to public water systems must contain a functional reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from a point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
- The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.
- Upon completion of insecticide application, remove scale, pesticide residues, and other foreign matter from the supply tank and entire injector system. Flush thoroughly with clean water.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

SPRINKLER CHEMIGATION

For continuously moving systems, the mixture containing Cavalier 2L must be injected continuously and uniformly into the irrigation water line as the sprinkler is moving. If continuously moving irrigation equipment is used, apply in no more than 0.25 inch of water. For sprinkler systems that do not move during operation, apply in no more than 0.25 inch of irrigation immediately before the end of the irrigation cycle.

Maintain continuous agitation of the pesticide supply tank for the duration of the application period.

To apply a pesticide using sprinkler chemigation, the chemigation system must meet the following specifications:

- The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch, which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- Do not apply when wind speed favors drift beyond the area intended for treatment.

RESISTANCE MANAGEMENT

Cavalier 2L controls several economically important insect pests, and also provides a margin of safety to pollinators and beneficial insects when used as directed. Cavalier 2L is an effective addition to IPM programs which follow good management practices including:

- Scout regularly to determine new insect pressure and apply Cavalier 2L against larval and immature insect stages for optimum results
- Carefully follow all label directions, including application timing and rate
- Use chemical alternatives (such as oil)
- As part of an IPM program, protect beneficial arthropods
- Use sufficient water volume to obtain good coverage of foliage
- Alternate different insecticides with varying modes of action

SPECIFIC USE DIRECTIONS FIELD AND ROW CROPS

ARTICHOKE (California only)

Application Instructions

Cavalier 2L can be applied aerially in 10 to 20 gallons (total volume) per acre, or by ground application in 50 to 250 gallons (total volume) per acre. Make sure that application volume is sufficient for adequate coverage.

Application Rates

Artichoke Plume Moth: apply 8-16 fl. oz. per acre

Optimum results are obtained when Cavalier 2L is applied when first moths are caught in pheromone traps, or when moth flights start.

IMPORTANT

- For use only in California
- Cavalier 2L can be a part of an IPM program to manage target pest populations (in combination with cultural practices, target insect population early detection, threshold treatment levels, etc.). University or local extension representatives can give recommendations regarding IPM practices
- Maximum number of applications is 3 in any 30 day period
- Application interval is a minimum of 15 days
- Pre-harvest interval is 1 day before harvest

BARLEY, OATS, TRITICALE, & WHEAT

Application Instructions

Cavalier 2L can be applied aerially in 2 to 5 gallons (total volume) per acre, or by ground application in 5 to 15 gallons (total volume) per acre. Make sure that application volume is sufficient for adequate coverage.

Application Rates

Grasshoppers: apply 1 – 2 fl. oz. per acre

Optimum results are obtained when application is made to infesting grasshoppers that have reached the 2nd and 3rd nymphal stage of development. Adult grasshoppers will not be effectively controlled by Cavalier 2L.

Cereal Leaf Beetle: apply 4 fl. oz. per acre

Make application when egg laying begins to occur, for optimum results. If infestation advances into later instar larvae, do not apply Cavalier 2L.

IMPORTANT

- If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper population soon enough to minimize extensive foliage feeding. Read and follow the label of each tank mix Cavalier 2L used for precautionary statements, directions for use, rates and timings, and other restrictions.
- Larvae and nymphs could take up to 5 to 7 days following application to show visible effects, due to the distinctive mode of action of Cavalier 2L.
- For use only in: Alaska; Colorado; Idaho; Montana; Nebraska, Western (West of Route 281); North Dakota, Western (West of Route 281); Oregon; South Dakota, Western (West of Route 281); Utah, Washington, Wyoming
- Maximum number of application is 1 per season
- Maximum amount of Cavalier 2L per acre is 4 fl. oz. per season
- Make application only up until the boot stage of growth
- Pre-harvest interval for forage is 3 days; Pre-harvest interval for hay is 15 days; Pre-harvest interval for grain and straw is 50 days.

COTTON

Application Instructions

Cavalier 2L may be applied aerially in 3 to 5 gallons (total volume) per acre, or by ground application in 10 to 20 gallons (total volume) per acre. Cavalier 2L can also be applied via ULV application in 20 to 48 fl. oz. total volume per acre aerially, or by ground application in 20 to 64 fl. oz. total volume per acre. Make sure the application volume is sufficient for adequate coverage.

Adjuvants

- If Cavalier 2L is being applied under conditions of high air temperature and/or low humidity, or other conditions that encourage water evaporation, 1 to 2 qts. oil is to be used with Cavalier 2L for control of larvae / nymphs
- For a low volume application (ground or aerial), the use of 1 pt. to 2 qts. of an emulsified vegetable or paraffinic crop oil can reduce evaporation of spray droplets (and subsequent drift), and can enhance canopy penetration
- When Cavalier 2L is being applied via ULV, 20 fl. oz. (minimum) of an emulsified cottonseed, vegetable or petroleum based oil carrier is to be used (if cottonseed oil used is non-emulsified, a compatibility agent may be necessary for thorough blending)

For oil specifications, check with your Raymat representative or supplier.

Application Rates

Beet Armyworm (early season before first bloom): Apply 2-4 fl. oz. per acre

For acceptable beet armyworm control in young cotton, apply Cavalier 2L when observing 2 beet armyworm egg masses or hatchouts per 100 feet of row, or other sign of beet armyworm activity. Make multiple directed or broadcast applications until 8 fl. oz. Cavalier 2L have been applied per acre, at application intervals of 5 to 7 days. Multiple applications more completely cover rapidly growing cotton plants, and Cavalier 2L's persistence can help prevent later buildup of beet armyworm populations.

Beet Armyworm (mid-season): apply 4-8 fl. oz. per acre

Make multiple applications at 5 to 7 day intervals, until 8 fl. oz. Cavalier 2L per acre have been applied. Start application around first bloom, up through mid-bloom. For more extreme larval pressure, or for larger cotton, use higher listed application rate. Make first application when a new generation of larvae is about to hatch (determined by peak beet armyworm moth catches in pheromone traps). For optimum control, treat cotton leaves during early stages of larval development, before populations become established.

Beet Armyworm (late season): apply 6-8 fl. oz. Cavalier 2L per acre

Apply when peak beet armyworm moth catches are observed in pheromone traps, after mid-bloom, but at least 14 days prior to harvest. For more extreme larval pressure, or for larger cotton, use higher listed application rate.

For control of **Fall Armyworm, Yellowstriped Armyworm, Southern Armyworm** and suppression of **Soybean Looper, Cabbage Looper, Saltmarsh Caterpillar**: apply 4 -8 fl. oz. per acre.

Make applications during a 5 to 7 day interval, in early larval development stages, until at least 8 fl. oz. Cavalier 2L per acre have been applied.

Boll Weevil (early season, before first bloom): apply 4-8 fl. oz. per acre

For optimum boll weevil control, apply initially at pinhead square stage of cotton growth. Wait 7 days before repeat application. For ULV application use the lower (4 fl. oz per acre) rate.

Adjuvants: Use 2 to 4 quarts paraffinic crop oil, emulsified cottonseed oil or vegetable oil. Or if making a ULV application, use a minimum of 8 fl. oz. of vegetable or petroleum based oil carrier, oil-based insecticide or emulsified cottonseed oil (if cottonseed oil used is non-emulsified, a compatibility agent may be necessary for thorough blending). For oil specifications, check with your Raymat representative or supplier.

Cavalier 2L does not kill adult boll weevil, but controls populations by suppressing reproduction – eggs deposited by affected female weevils will not hatch. Seven to 10 days after initial treatment of female, non-hatching eggs are laid, and will continue to be laid for approximately 10 days, or longer if female boll weevil is exposed to additional applications of Cavalier 2L. Control of egg hatch and larval development within the pinhead square keeps it from shedding, and results in normal boll development. Multiple treatments and early application will result in best control.

Boll Weevil: apply 2-4 fl. oz. per acre

Apply when adult weevils are going into diapause, when cotton plant has begun blooming out at the top or has reached full vegetative growth. The number of weevils that appear in the spring is reduced when applications are made to adult weevils going into diapause to overwinter.

Make 2 to 3 (maximum) applications, at 7 to 14 day intervals.

Adjuvants: Use 2 to 4 quarts paraffinic crop oil, emulsified cottonseed oil or vegetable oil with a low volume application spray. Or if making a ULV application, use a minimum of 8 fl. oz. of vegetable or petroleum based oil carrier, oil-based insecticide or emulsified cottonseed oil (if cottonseed oil used is non-emulsified, a compatibility agent may be necessary for thorough blending).

Grasshopper: apply 2 fl. oz. per acre

When most infesting grasshoppers have reached the 2nd and 3rd nymphal stage of development, Cavalier 2L should be applied. For effective control, apply before grasshoppers reach the adult stage. If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper population soon enough to minimize extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

IMPORTANT:

- Cavalier 2L can be tank mixed with other cotton insecticides. Be careful when tank mixing Cavalier 2L with emulsifiable concentrate insecticides and oil, as phytotoxicity may result. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.
- Larvae and nymphs could take up to 5 to 7 days following application to show visible effects, due to the distinctive mode of action of Cavalier 2L.
- Maximum number of applications per season is 6
- Maximum amount of Cavalier 2L per acre is 24 fl. oz. per season
- For uses after boll opening, the maximum number of applications is 3, and the maximum amount of product per acre is 12 fl. oz.
- Pre-harvest interval is 14 days

LEAFY BRASSICA GROUP (includes: Broccoli raab, Cabbage, Chinese (bok choy), Collards, Kale, Mizuna, Mustard greens, Mustard spinach, Rape greens) and **TURNIP GREENS**

Application Instructions

Cavalier 2L can be applied via ground application in a minimum of 30 gallons of water per acre. Multiple applications can more effectively cover newly growing foliage. Make sure that application volume is sufficient for adequate coverage.

Application Rate

Grasshopper: apply 2-4 fl. oz. per acre

When most infesting grasshoppers have reached the 2nd and 3rd nymphal stage of development, Cavalier 2L should be applied. Reapply after 7 days if crop reinfestation (nymphal hatch out) continues. For effective control, apply before grasshoppers reach the adult stage. Use higher application rate for greater residual control, around dense foliage, or for areas with historically heavy grasshopper infestations.

IMPORTANT

- Larvae and nymphs could take up to 5 to 7 days following application to show visible effects, due to the distinctive mode of action of Cavalier 2L.
- If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper population soon enough to minimize extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.
- Populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting
- Do not apply to turnip varieties or cultivars with harvestable root
- Maximum number of applications per season is 4
- Maximum amount of product per acre is 16 fl. oz. per season
- Pre-harvest interval is 7 days

PEANUT

Application Instructions

Cavalier 2L can be applied aerially, in 3 to 5 gallons water per acre, or by ground application, in 9 to 35 gallons water per acre. Make sure that application volume is sufficient for uniform coverage.

Adjuvants: See COTTON section.

Application Rate

Velvet Bean Caterpillar, Mexican Bean Beetle, Green Cloverworm: apply 2-4 fl. oz. per acre

Armyworm (such as Beet, Fall, Southern, Yellow-striped), Lesser Cornstalk Borer: apply 4-8 fl. oz. per acre

Soybean Looper suppression: apply 4-8 fl. oz. per acre

For optimum control and minimization of insect damage, apply when larvae are small (less than 1/2 inch). Use higher application rate for greater residual control, around dense foliage, or for areas with historically heavy infestations. Cavalier 2L can be reapplied if necessary, to control reappearance of pests, after an application interval of 14 days.

Grasshopper: apply 2 fl. oz. per acre

When most infesting grasshoppers have reached the 2nd and 3rd nymphal stage of development, Cavalier 2L should be applied. For effective control, apply before grasshoppers reach the adult stage.

IMPORTANT

- Due to the distinctive mode of action of Cavalier 2L, it could take up to 5 to 7 days following application to show first signs of control (populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting)
- If a large influx of grasshoppers occurs, tank mixing with a knockdown insecticide is recommended. Use of Cavalier 2L alone may not reduce grasshopper population soon enough to minimize extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.
- Maximum number of applications per season is 3
- Maximum amount of product per acre is 24 fl. oz. per season
- Pre-harvest interval is 28 days

PEPPER – Bell and Non-Bell

Application Instructions

Cavalier 2L can be applied aerially, in 3 to 10 gallons (total volume) per acre, or by ground application, in a minimum of 30 gallons (total volume) per acre. Make sure that application volume is sufficient for adequate coverage.

Adjuvants: see COTTON section.

Application Rate

Apply 4 to 8 fl. oz. per acre

Pepper Weevil - Make application when pepper plants begin to flower. For more thorough coverage of expanding fruit and new foliage, Cavalier 2L can be reapplied every 7 days (note – do not exceed seasonal application rate of 24 fl. oz. product per acre). For moderate to heavy infestations, use higher rate. Cavalier 2L does not control adult pepper weevils, but adult contact or consumption of Cavalier 2L will bring about reduced hatching of eggs from these adults.

Armyworm (Beet, Fall Southern) and other Lepidopteran insects that feed on pepper foliage:

For control of armyworms and to lessen damage to fruit and leaves, make application when armyworm larvae are small. For more thorough coverage of expanding fruit and new foliage, Cavalier 2L can be reapplied every 7 days (note – do not exceed seasonal application rate of 24 fl. oz. Cavalier 2L per acre). For heavy infestations, or if product is applied alone, use higher rate.

Tank Mixes: If presence of late instar larvae are detected, tank mix Cavalier 2L with an insecticide that provides insect knockdown. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

IMPORTANT

- Maximum amount of product per season is 24 fl. oz. per acre
- Maximum amount of applications per season is 5
- Pre harvest interval is 7 days
- Due to the distinctive mode of action of Cavalier 2L, it could take up to 5 to 7 days following application to show first signs of control (populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting)

RICE

Application Rate and Instructions

Apply Cavalier 2L aerially, in at least 5 gallons total volume per acre.

Rice Water Weevil:

When adults have reached an economic threshold or begin laying eggs, application of Cavalier 2L will control rice weevil larvae. Local extension service or university experts can advise regarding egg laying and economic threshold. Use the rates indicated below:

- California – Make one 8 to 16 fl. oz. per acre application (for historically high infestations, use 12-16 fl. oz. rate). Apply to rice in CA when rice is at 2 to 4 leaf stage, typically 2-5 days after rice emerges above water.
- Southern U. S. Rice Belt – water seeded, pinpoint flood or continuous flood rice – Apply 8 fl. oz. per acre application (typically when rice leaves have emerged above water). Make second 8 fl. oz. application 5 to 7 days later. [NOTE – not making second application in indicated time frame could lead to unsatisfactory control, particularly for higher infestations or prolonged migration]
- Southern U. S. Rice Belt – drill seeded, dry seeded or water seeded delayed flood rice – Make one 12 to 16 fl. oz. per acre application (for historically high infestations, or prolonged migration of weevils into rice field, use higher application rate). Apply to rice 2 to 5 days after permanent flood establishment.

For optimum results, wait 7 days to disturb flood after single application, and for split application, wait 4 days to disturb flood after first treatment and 7 days to disturb flood after second treatment.

Tank Mixes: Cavalier 2L can be tank mixed with rice post permanent flood herbicides, such as those containing the active ingredient quinclorac, triclopyr or bensulfuron methyl, as it does not exhibit any phytotoxicity to rice. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

IMPORTANT

- Preharvest interval is 80 days
- To avoid decreased activity, apply Cavalier 2L when field flooding is not in progress
- Treat entire field with Cavalier 2L (do not try to treat specific sections of rice field)
- Not for use on wild rice (*Zizania spp.*)
- Granular material treated with Cavalier 2L cannot be used in rice
- Cavalier 2L should not be used around crayfish (crawfish):
 - Do not use on rice fields that are also used for crayfish farming
 - Do not use on rice fields that are directly next to sites of crayfish farming
 - Do not drain treated water onto fields where crayfish are farmed
- Floodwaters from treated rice are only to be used to irrigate crops listed on Cavalier 2L's label.
- Retain treated floodwaters at least 14 days, to give Cavalier 2L time to dissipate
- Cavalier 2L does not control adult weevils directly, adults feeding on treated plants will not lay viable eggs
- Cavalier 2L prevents larvae from hatching, and controls eggs laid under water treated with Cavalier 2L

SOYBEANS (Except California)

Application Instructions

Cavalier 2L can be applied aerially, in 3 to 5 gallons water per acre, or by ground application, in 9 to 35 gallons water per acre. Make sure that application volume is sufficient for uniform coverage.

Adjuvants: See COTTON section.

Application Rate

Velvet Bean Caterpillar, Mexican Bean Beetle, Green Cloverworm: apply 2-4 fl. oz. per acre

For lower insect damage and optimum control, apply when larvae are small (less than 1/2 inch). Cavalier 2L can be reapplied if necessary, to control reappearance of damaging numbers of pests, after an application interval of 30 days. When soybean pod formation has begun, after vegetative growth is complete, Cavalier 2L applied at the lower rate (2 fl. oz) can prevent velvetbean caterpillar buildup.

Beet Armyworm, Fall Armyworm, Soybean Looper (suppression): apply 4 fl. oz. per acre

For optimum control, apply before populations build, and when worms are small in size.

Grasshopper: apply 2 fl. oz. per acre

When most infesting grasshoppers have reached the 2nd and 3rd nymphal stage of development, Cavalier 2L should be applied. For effective control, apply before grasshoppers reach the adult stage.

Tank Mix: Apply Cavalier 2L tank mixed with a knockdown insecticide if soybean fields experience a large grasshopper population incursion from adjacent and nearby fields, to reduce extensive foliage feeding. Read and follow the label of each tank mix product used for precautionary statements, directions for use, rates and timings, and other restrictions.

Soybean yield enhancement: Cavalier 2L can increase soybean seed yield in both determinate and indeterminate cultivars, under certain growing conditions, and LOW insect pressure. Making application of Cavalier 2L at 2 to 4 fl. oz., at the R3 (beginning of pod growth – fully developed leaf with pod of 3/16 inches in length on main stem uppermost node) or R3.5 (pod almost fully elongated – fully developed leaf with pod 3/4 inches in length on main stem uppermost nodes) growth stages will result in most consistent yield increase.

IMPORTANT

- Do not use on soybeans in the State of California
- Due to the distinctive mode of action of Cavalier 2L, it could take up to 5 to 7 days following application to show first signs of control (populations will not be decreased until larvae and nymphs ingest plant material treated with Cavalier 2L, and then undergo molting)
- Maximum number of applications per season is 2
- Pre-harvest interval is 21 days

TURFGRASS (for use on sod farms only)

Application Instructions

Cavalier 2L can be applied in 20 to 50 gallons of water per acre. Use higher volume of water for greater insect pressure or dense foliage.

Application Rate

Armyworms (Fall, True, Southern Beet, Yellow-striped), Sod Webworm, Striped Grass Looper, Granulate Cutworm and other Lepidopteran foliage-feeding caterpillars:

Apply 2 fl. oz. per acre

Make application while caterpillar larvae are small (less than 1/2 inch long, prior to reaching fourth instar growth stage), and at first sign of hatch out. Populations will be decreased once larvae consume Cavalier 2L and undergo molting.

IMPORTANT

- Maximum amount of applications per year is 4